# Consequences of KPIs and Performance Management in Higher Education

**Therése Kairuz** (Corresponding author)
College of Medicine & Dentistry, James Cook University, Australia

**Lynn Andriés**
Symbiota Leadership Institute, South Africa

**Tracy Nickloes**
Symbiota Leadership Institute, South Africa

**Ilse Truter**
Faculty of Health Sciences, Nelson Mandela Metropolitan University, South Africa

**Abstract :**

The core business of universities is learning. Cognitive thinking is critical for learning and the development of new knowledge which are essential in higher education. Creative, reflective and critical thinking are negatively affected by unrealistic demands and stress. The purpose of this conceptual paper is to argue that Key Performance Indicators (KPIs) and performance management are detrimental in the higher education sector, as they cause undue stress which impacts negatively on that essential criterion of academia, cognitive thinking.

To explore this issue, the authors discuss the impact of stressful demands in the context of Australian higher education. The paper draws on literature that describes 'managerialism' and on neuroscientific evidence to develop a hypothesis that supports a more holistic approach to human resources management of academics.

Performance management and measures (including KPIs) add to the complex demands of academic work despite a lack of evidence that they are appropriate in the higher education sector. Performance management systems and KPIs undermine creative, reflective and critical thinking. Principles governing education should supersede the ever-growing emphasis that is being placed on quantitative measures and bureaucratic demands in higher education.

**Keywords:** Performance; appraisal; measures; metrics; stress; faculty

## Introduction

Universities were founded on learning and discovery. The work of academics includes teaching, research, innovation, engagement with professions, service to the community, and governance (Coates and Goedgebuure, 2012). Nearly thirty years ago, Gmelch *et al.* (1986) described the " *plethora of roles of an academic, including teacher, adviser, researcher, university citizen, and departmental colleague and mentor*" as stressful. In Australia, the stress associated with academic work appears to be escalating and academics have a constant daily battle juggling teaching, research and the growing demands of an increasingly managerialist higher education sector (Bexley *et al*., 2011; Field, 2015). The higher education sector seems obsessed with surveillance, measurement and documentation, driving academics to meet targets and performance indicators (Chan, 2015; Field, 2015; Jones *et al.*, 2015).

Managerialism has increased steadily in Australian higher education (Bexley *et al.,* 2011) and by early 2015 the wave of new public management and the associated corporatisation had taken root (Jones *et al*., 2015). New public management arose in the latter quarter of the 1900's and was expected to stem spending in the public service. Its professed claims included that it would provide cheaper and better public services for all (Hood, 1991). Universities rely heavily on government funding and could be regarded as part of the public sector although there is a fundamental and important difference: universities are inextricably linked to the development of new knowledge (Jones *et al.,* 2012). However, it could be argued that education is being reduced to the delivery of a service and relatively little attention is being given to the cognitive processes that are essential to facilitate learning and develop new knowledge. Under new public management the higher education sector may simply 'process' students instead of *educating* tomorrow's workforce. Cognitive and critical thinking by

academic faculty underpins higher education and the facilitation of learning at university requires more than the application of teaching skills. There is growing support from neuroscience for the value of teaching styles which develop neural pathways (CERI, 2008), such as the inclusion of rich detail and in-depth critique. However, despite advances in neuroscience, it is not known exactly how the brain generates the thought processes which enable us to learn. Cognitive thought -'thinking'- is critical for learning and the development of new knowledge and is essential in higher education. It is necessary for successful teaching, learning and research for learners and their teachers. There are cognitive differences among learners which impact the way they assimilate and process information (Leonard & Straus, 1997) and academics experience ongoing challenges to meet the learning needs of students. For example, a student may demonstrate an analytical, sequential approach to problem-solving or an intuitive, values-based and non-linear approach. Similarly, academics demonstrate cognitive preferences and may focus on data and details or on the relationships and patterns which emerge from data. Leonard and Strauss (1997) report how cognitive differences constrained the advancement of some individuals in a private sector organisation, to the detriment of the organisation as a whole. However, organisational performance and productivity improved dramatically when countercultural 'brain-based' thinking was actively fostered and rewarded. Performance management systems in the higher education sector often do not exploit cognitive differences for the good of the organisation and tend to use a 'one-size-fits-all' approach.

In an environment that is heavily influenced by a positivist, data driven approach, and coupled with management expectations to be at the forefront of knowledge in their disciplines, it is understandable that the work of academic could be considered stressful. The purpose of this conceptual paper is to argue that Key Performance Indicators (KPIs) and

performance management cause undue stress for academics and are therefore unsuitable for the higher education sector. We discuss the effects associated with an increase in stressful demands - including those generated by KPIs and performance management - and provide supporting evidence from recent neuroscientific findings about the impact of stress. Australian higher education, a multi-billion dollar industry, provides the context for this paper and is the backdrop against which a hypothesis is formulated (Eacott, 2013).

Universities play an important role in the Australian economy and also contribute to the country's social well-being. Australia follows the United States and the United Kingdom as the world's most significant destination for international students. Education is the country's largest service export, generating nearly $15 billion annually. International students comprise 25% of the total number of enrolled students, which exceeds 1.3 million (Universities Australia. Data Snapshot 2015). There are 37 public and 2 private universities in a nation with a resident population of about 23.5 million people (Australian Bureau of Statistics, 2014). Most universities (31/39) have more than 20,000 enrolled students and 5 have enrolments exceeding 50,000 (Universities Australia. Data Snapshot 2015).

Productivity growth in Australian universities has outpaced productivity in other sectors of the economy (Universities Australia. Policy Statement 2013-2016), and therefore, discussion about productivity measures in higher education is timely. Control in Australian universities is shifting from academics to senior managers (Bexley *et al.*, 2011) and therefore the management of academics who have to meet productivity measures is particularly relevant. In this paper the term 'academic' includes faculty, lecturers and professors.

**KPIs**

KPIs are used to gauge organisational performance in relation to strategic and operational goals and are quantifiable measures that reflect factors critical to the success of a university. In the higher education sector, strategic and operational performance indicators are determined by senior management in consultation with financial organisations such as Deloitte and Touche, Ernst and Young, and Price Waterhouse Coopers. KPIs play an integral role in performance and assumed elevated importance after the introduction of performance-based funding in higher education. Performance-based funding is a system that is used by some governments to allocate resources to public universities. Introduced in the U.K., performance-based funding had been adopted by eleven countries by 2010 (OECD, 2010a) despite some concerns. The funding models use peer review, bibliometrics, performance data and quantitative indicators; the latter include student satisfaction surveys, retention and completion rates, graduates' success, the funding that academics are able to attract, and the research outputs that they generate. As part of performance-based funding, Excellence in Research Australia (ERA) was introduced in 2010 in Australia to "evaluate the quality of the research undertaken in Australian universities against national and international benchmarks" (OECD, 2010b). Indeed, it is government policy to drive Australia's research competitiveness and universities are integral to the research effort (Universities Australia. University research).

Funding for the development and implementation of the ERA was allocated by the government in the 2009-2010 Budget and is managed by the Australian Research Council. A list of journals was produced in 2010 and journals were ranked in terms of quality (A, B or C) through a rigorous peer review process. Data about publications are submitted to the

Department of Education for evaluation and subsequent allocation of funding. The original ERA list caused some dissent and journals are no longer ranked as A, B or C, and the ERA 2015 is not publicly available. An outcome of ERA is that academics are pressured to increase the frequency and quality of publications by publishing in highly ranked journals. It is possible that performance-based funding was a driver for new performance management in higher education as it is interesting that academics in Australia and the United Kingdom expressed low satisfaction with university management compared to other countries (Coates *et al*., 2009).

**Performance management**

Performance management is a formal, structured system for measuring, evaluating and influencing an employee's productivity and originated in the 1970s (Field, 2015). Performance management was forced onto academics in many countries during the 1980s even though the 'problem' that it was meant to 'manage' has never been identified (Field, 2015) and it is prudent to acknowledge that "performance management did not make the world's great universities what they are today" (Coates, 2014).

Performance management was based on the goal-setting theory of Locke (1991) and is administered through performance appraisal and feedback. Performance appraisal in Australian higher education was actively encouraged by government through substantial financial incentives that were offered in 2000. However, there are concerns about performance appraisal, and it is known that annual appraisals create anxiety for the giver and receiver of feedback (Dixon *et al.,* 2010). Furthermore, evidence from applied neuroscience indicates that different neural networks in the brain are activated in discussions about analytics compared to social discussions, and these networks suppress each other.

Conversations which begin with discussions about analytics tend to cause people to close down cognitively and emotionally (Boyatzis, 2011; Boyatzis, 2012) and hence appraisals based on metrics and KPIs are likely to limit performance. The value of feedback as a stimulator for improved performance is questionable and it has not been proven that giving feedback and telling employees they were doing 'wrong' will result in behavioural change and enhance performance (Dixon *et al*., 2010). On average, feedback interventions improve performance only 41% of the time while they make matters worse 38% of the time (Denisi and Klugner, 2000). In a recent study among 40 Australian academics, Field (2015) found little or no evidence that performance *development* was occurring during the management of academics and the supervisory relationship that should exist, was minimal or non-existent. There is evidence that resentment to performance management is building among Australian academic staff (Jones *et al.*, 2012) and the benefits of alternative human resources approaches should be investigated; for example, brain imaging shows that an approach that uses guidance and coaching evokes less resistance and actually enhances performance and productivity in the business sector (Mobbs and McFarland; 2010).

Collegial relationships in universities include mentoring and coaching. This has been a characteristic of higher education for decades (Kram and Isabella, 1985) and involves helping a less experienced person to achieve his or her goals in a mutually beneficial relationship. Mentoring plays a significant role in postgraduate research studies (Lee, 2008) and an editorial in 'Nature' acknowledged the important role of academic mentoring in the development of young researchers, calling upon universities to counter the pressures that negatively impacting on academic mentoring (Anon, 2013). Mentoring also promotes "a collegial sense of community" in the university workplace (Birnbaum and Edelson, 1989) and as it takes about seven to 10 years to train a new academic (Coates, 2014), mentoring

may reduce staff turnover. However, Field (2015) found that performance management systems in Australian higher education are undermining collegiality.

**KPIs and teaching**

Student evaluation of teaching (SET) has become a tool to collect satisfaction data about teaching although student evaluations were originally designed to gather feedback that was used to inform and improve teaching. In the current environment, SET is used to generate data which are used to calculate scores; these are used as surrogate KPIs of teaching. There are flaws and biases associated with SET surveys for this purpose (Patrick, 2011); SET ratings may not be valid and the sample sizes are often not representative (Shevlin *et al*., 2010). Importantly, the SET scores do not reflect learning or the quality and effectiveness of teaching (Patrick, 2011). SET is compulsory in Australian universities and Australian academics are held accountable for teaching through their SET scores (Cretchley *et al*., 2014) despite the concerns described above. Interestingly, an American study proved that SET scores were significantly correlated with burnout among academics (Lackritz, 2004). SET is also associated with survey fatigue among students which further compromises the validity of the 'findings' (Shevlin *et al*., 2010; Patrick, 2011). Recent anecdotal evidence suggests that some universities even withhold grades until students have completed the online SET surveys; this goes against principles of ethical research which is a fundamental requirement in higher education.

**KPIs and research**

Research productivity is a major determinant of the performance of academics and a core indicator of university rankings, nationally and internationally (Jung, 2012). A variety of measures was spawned by the h-index which is a measure of scientific value; it has resulted

in citation databases which generate metrics. A metric depends on the database from which it is generated. ResearcherID is a metric derived from publications indexed in the Web of Science database. Based on positivism that underpins biomedical research, the metric is not suitable for academics who publish peer-reviewed research in journals which are not indexed in Web of Science. These academics had to trawl though journals, impact factors and citations in order to justify their research while their colleagues who published in journals indexed in Web of Science only had to click a mouse-button. Citation databases such as SCOPUS, ORCID and Google Scholar – the latter is publicly available - fuel the growing demand for quantitative measures.

The rise of metrics has meant that academics are increasingly referred to as a number rather than a person (Enserlink, 2009). In his theory of the human Connectome, neuroscientist Seung describes summarising a person as a single number as "reductionist and dehumanizing" (Seung, 2012, p7). Despite a warning against the use of reductionist approaches in education (CERI, 2008) and a criticism of their use in research (DORA, 2012), a numerical performance index is generated by university 'dashboards'. Dashboards provide instant information about KPIs and can also be used to compare the performance of academic staff. For example, the Q-index designed by the University of Queensland "provides relevant benchmarks that support comparisons with 'average' performance levels across the University and within Faculties or Institutes, Schools and Academic level" (Q-Index Information). In addition to being reductionist, dashboard measures contribute to competitiveness and therefore, to stressful demands.

**Other stressful demands in academia**

*Pastoral care and duty of care*

It is expected that universities will "support [students] to realise their potential" (Universities Australia. Policy Statement 2013-2016); however, this is becoming increasingly demanding, as the number of enrolled students is increasing and staff:student ratios are decreasing (Bexley *et al*., 2011; Coates and Goodgebuure, 2012). The increasing proportion of international students contributes to the rising number of culturally and linguistically diverse (CALD) learners (Benzie, 2010; Hickling-Hudson and Sidhu, 2012) and it has been reported that they suffer from personal, social and cultural loneliness (Sawir *et al*., 2008). In addition to the teaching demands associated with non-English speaking students (Benzie, 2010) academics are often involved in pastoral care for international as well as domestic students. As an organisation, a university has a duty of care, a holistic responsibility for students' well-being which extends beyond lecture halls and learning spaces (Yeo, 2002). However, the responsibility of care usually falls on the shoulders of academics. Providing care is not a KPI and is unrecognised and unrewarded in current systems of performance management.

*Technology*

Information and Communication Technology (ICT) is used by academics for the delivery of learning material and to aid cognition in the learning process (Tamim *et al.*, 2011) and increasingly, for administrative functions. It is recognised that academics face diverse challenges in technology (Kagaari *et al.*, 2010) and the impact of rapid advances in ICT are associated with stress among academics (Voakes *et al.*, 2003; Kemp *et al.*, 2014), particularly those of mature age (Bexley *et al*., 2011). ICT has also been associated with burnout (Beam *et al.*, 2003).

*Funding of universities*

Frequent changes in the government in Australia in recent years have had far-reaching effects on higher education. Political decisions have resulted in structural re-organisation in many universities as a result of efforts to compensate for reduced funding. Change impacts throughout an organisation and can create a sense of unease and uncertainty among staff (Aarons, 2006), and an unhealthy climate in the workplace can affect work engagement (Judge *et al.*, 1997) and productivity (Roberts and Davenport, 2002). The impact of organisational re-structuring is captured in a quote from Petronius Arbiter, 210 BC: "*We trained hard...but it seemed that every time we were beginning to form into teams, we would be reorganized. I was to learn later in life that we tend to meet any new situation by reorganizing, and a wonderful method it can be for creating the illusion of progress while producing confusion, inefficiency, and demoralization."*

*Grant applications*

The mounting pressure to obtain funding has resulted in Australian academics having to spend a large amount of time writing and/or reviewing grant applications. Researchers compete for a dwindling pool of money in a funding environment that Herbert *et al*. (2013) described as "highly competitive". These Australian researchers determined the total amount of time that was spent on grant applications in 2012, and determined that the equivalent of more than four centuries of academics' time had been wasted on grant applications that were not funded. In early 2015 a team of researchers from the same university launched a survey to explore the feasibility of an alternative funding system that avoided the submission and review of lengthy applications.

*Bureaucracy*

The rise of KPIs, targets and metrics add to an already complex range of competing demands that are experienced by academics. In addition, performance management systems consume a significant amount of time and contribute significantly to increased reporting and documentation (Bexley *et al.*, 2011).

**Consequences of performance management and KPIs**

KPIs fuel competiveness and allow benchmarking, increasing the pressure for universities to compete, nationally and internationally. It is pertinent to remember that the core business of universities is learning (Coates and Goedgebuure, 2012) which is facilitated by the academic profession. Learning occurs among students and among faculty and to facilitate learning academics use creative, reflective and critical thinking which requires deep thought processes. These can only occur when the limbic system of the brain which is associated with emotions and memory, is not unduly aroused and negatively affected by demands and perceived threats. An individual's perception of a demand and his/her ability to meet that demand results in a response to perceived stress (Gmelch *et al*., 1986). Mild stress evokes a physiological threat response which can enhance performance; however, the 'fight or flight' response to stress, which is triggered by the sympathetic branch of the autonomic nervous system, impairs creative and reflective thinking. Prolonged stress causes sustained increases in the levels of the sympathetic neurotransmitter adrenaline and the corticosteroid endocrine hormone, cortisol. The highest density of receptors for this hormone is found in the hippocampus, a region of the limbic system which is significantly associated with memory and learning (Lupien and Lepage, 2001). Stressful work, therefore, negatively impacts on

cognitive ability; prolonged stress leads to burnout, a state of mental and emotional exhaustion (Lackritz, 2004).

Unhealthy competitiveness may also overshadow regional educational needs (OECD, 2008; OECD, 2010a). Tertiary education contributes significantly to the socio-economic objectives of a country (OECD, 2008) and the value of academic work is immense, as it is seen as a fundamental pillar for economic growth. The management of university academics deserves urgent attention as the profession plays a vital role in the development of future human resources.

The drive to reach unreasonable targets amidst the demands of teaching, innovation, engagement and discovery is likely to impair the cognitive function required to generate new knowledge. It could be argued that academics are being exploited for their cognitive ability and good-will; the sector needs to change to a more appropriate system of human resources management, or the situation may become analogous to the story of the goose that laid the golden egg. We coin the phrase "*critical thinking-space*" to reflect the uncluttered time required for the essential cognitive thought processes which are expected from the academic profession.

While executive management is focussed on KPIs and strategic objectives, academics and their immediate supervisors deal with operational realities of modern day academia. Academic work is experiencing an "onslaught of pressures that touch its core" (Coates and Goedgebuure; 2012) which is fuelled by the "modern mantra of quantity" (Fisher *et al*., 2012) and the performance measures which pervade Australian higher education (Bexley *et al.,* 2011; Field, 2015; Jones *et al.,* 2015). The recent qualitative findings by Field (2105) provide insight into the crisis and highlight the negative role of performance management in

universities. There is no evidence that academics have to be 'performance managed'; however, there is rising evidence against performance management and its underpinning metrics (Bexley *et al*., 2011; Coates and Goedgebuure, 2012; Cretchley *et al*., 2014; Jones *et al.*, 2012; Field, 2015).

Academics receive little in terms of reward in the current systems of performance management. It could be suggested that this is because academics are known to be intrinsically-motivated (Bexley *et al*., 2011). An alternative to performance management is an approach that has been used in the business sector and which has been shown to to enhance performance. The approach encourages co-operation and fairness and there is evidence that the approach leads to increased activity in areas of the brain associated with reward and motivation. Described as a neuroleadership approach to managing employees, it is based on principles that support status, certainty, autonomy, relatedness and fairness (SCARF) (Rock, 2008; Ringleb and Rock, 2009; Rock and Cox, 2012). A work environment that encourages collegiality could be expected to motivate employees (Tabibnia and Lieberman, 2007) as it has been shown that co-operation is associated with increased neural activity in areas of the brain associated with motivation (Rock and Cox, 2012).

Findings from neuroscience provide evidence for holistic approaches to education (CERI, 2008) and it is timely, therefore, to warn of the consequences of reductionist approaches to the management of educators. Performance management and the associated KPIs could be described as a 'stick rather than carrot' approach. Indeed, performance management has been described as 'ruthless' in Australian universities (Field, 2015). This paper has drawn on data drops from Australian higher education where the funding of higher education could be described as a political football; frequent changes in government have been accompanied by

frequent changes to budgetary decisions, including the funding of higher education. Demands on academics in other countries may be similar and recent findings among academics from Ontario, Canada, indicate that KPIs are *not* seen as appropriate measures of performance (Chan, 2015). Despite the context, consequences are likely to be similar: the stress which arises from unhealthy demands, KPIs and competitiveness will impair cognitive thought processes.

Nearly three decades ago Edelson argued that traditional management theories simply would "not fit" in academia (Birnbaum and Edelson, 1989) and it is surprising that universities continue to impose performance management and KPIs. Lackritz *et al*. (2004) stated more than ten years ago that academic burnout among university faculty needed to be studied further yet stress as a factor in the academic workforce has emerged regularly in literature (Benzie, 2010; Bexley *et al*. (2010); Coates and Goodgebuure, 2012; Kemp *et al.*, 2014). The sector needs to change the way academics are managed. Jones *et al.* (2012) argue for leadership in Australian higher education that underpins creative and innovative thinking, and Coates and Goodgebuure (2012) suggest that universities should adopt an individualised approach to supporting and monitoring employees; similar systems have been used successfully in other sectors. Recently, the Washington Post reported that prominent major corporations will disband employee rankings, remove annual evaluation and change to a less time-consuming, more fluid system to proactively manage that most important asset, human capital (Washington Post, 21 July 2015).

Universities expect academics to use appropriate, valid and reliable research measures and ethical approaches to scholarly activities yet performance management and the associated indicators do not necessarily meet comparable standards; indeed, there is emerging

information that suggests the contrary. Given the findings discussed in this paper, the authors hypothesise that KPIs and performance management are detrimental to higher education.

***Conclusion***

This conceptual paper highlights the multifactorial nature of stresses for academics in higher education and is hypothesis-generating. Various aspects discussed within this paper are underpinned by financial drivers and in the current climate of corporatisation it will be challenging for university leaders to find a balance which permits the generating of revenue in terms of research outputs and student numbers, and the cognitive 'critical thinking-space' that the work of university academics requires.

Rising demands may be the result of bureaucracy from administrative departments coupled with expectations from HR departments, and the combination is generating excessive pressures on academics. Unhealthy competitiveness and demands cause stress which in turn reduces cognitive thinking. Creative, reflective and critical thinking, essential in academics for generating new knowledge, are undermined by KPIs and performance management systems, and are counterproductive in this sector. Principles underpinning higher education should supersede the ever-growing emphasis that is being placed on quantitative measures and bureaucratic demands, and the management of academics requires urgent attention.

Adjusting to demands requires emotional self-regulation by the individuals at whom demands are directed. If demands continue to rise, higher education could develop into a high-threat working environment. Future research will need to investigate different research questions from a variety of perspectives, such as research into the design and implementation of HR systems that use alternative models to facilitate performance, tailored to academia. Research is also needed among academics who work within the HR systems and who are expected to

generate research, design and deliver teaching materials, and facilitate learning among students of diverse language, cultural and cognitive ability. Future research regarding the impact of alternative styles of management of academics could extend to the students who purchase education and to the end-users of the product of higher education, namely employers of university graduates.

Academics are known for their guiding, coaching and encouraging approaches to the facilitation of learning and it is these very approaches which are being shown by neuroscience to enhance performance. It may be interesting to examine the overall productivity and retention of academics in the workplace if performance management were replaced by an inspirational model based on the findings of neuroscience and designed specifically for the higher education sector.

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