Incentivising and rewarding research outputs FINAL REPORT

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January 2020

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Executive summary

Quality research is not only important as a source of external funding and national profile (e.g. PBRF), it is also essential to ensure continued accreditation to deliver degrees and post-graduate programmes. However, the recently implemented 'traffic light' system of measuring the number of staff teaching on these programmes who are, in fact, research active, has shown just how far we are from achieving this compliance (In 2018, just 13% were 'green lit'; 19% were 'amber lit'; 69% were 'red'). Anecdotally, members of the Research Office were well aware that many teaching staff continued to view research as low priority, inequitably supported, inadequately resourced and insufficiently rewarded. Our organisational aim of 'growing a research culture' can be a hard sell.

This project explored strategies to address such concerns. The first source of data was an overview of the rewards, incentives and organisational frameworks that the 15 other ITPs are offering. Responses were received from 11 organisations, including our own, and are reported under three broad categories of incentives and support frameworks identified in the literature: the institution's culture, the faculty's leadership, and the individual researcher. Second, we interviewed 22 participants from the six Toi Ohomai faculties offering degree-level qualifications, purposely selected to include a cross-section of teaching staff currently rated as 'green', 'amber' and 'red' based on recent research outputs. Interviewees were asked about their own experiences and attitudes to research involvement and to respond to prompts about various reward and incentive options developed from the first phase of data collection, as well as the literature (see Appendix).

Findings from the sector overview showed a considerable variety of practices related to incentivising and rewarding research productivity. Teachers' testimonies were also diverse, as expected given the disparity of experience. However, there were also multiple commonalities, with many related to the challenges of available time, and managing workload. There was a fairly widespread cynicism about the actual, as opposed to voiced support for research by leadership and management; over half the participants described the erosion of allocated research time by subsequent requests to take on additional teaching and team responsibilities. Conversely, interest and encouragement from line managers when it occurred was valued by researchers at all levels as a key enabler. Most participants preferred collaborative team projects over individual research; nearly half would like a research mentor.

This report offers a very concise overview of more than 80 pages of interview transcripts; the team's intention is that these will be the subject of a later publication. To date, the project has generated

two research outputs for the team members, with conference presentations at the NZABE (New Zealand Applied Business Education) conference in Christchurch, in October 2019, and the Inquire inspire conference at the University of Waikato's Tauranga campus in November. An international conference presentation, with a peer-reviewed paper accepted for the Proceedings is scheduled for March 2020. Internally, the key findings outlined here will be shared with the Research Team in a Planning Day, February 12, and if the Research Team approves, with new Faculty Deans and Associate Deans, via Faculty Research Coordinators.

Background

The New Zealand Government is committed to growing research capability as an integral part of our higher education landscape: "Tertiary education supports innovation by connecting the research, expertise of the sector, and skilled graduates with business and communities" (TEC, 2019). In the same report of the 2018 PBRF results there is a clear recognition that "research excellence requires ongoing reflection and improvement". This is true for the sector, and it is true for Toi Ohomai. Key drivers to the pursuit of excellence, then, include performance-based funding mechanisms, a commitment to currency and relevance for our learners and communities, the expectations of professional bodies for evidence of rigour in the delivery of professional qualifications, and New Zealand Qualifications Authority (NZQA) compliance requirements (Arcus, 2017).

Toi Ohomai is highly mindful of these imperatives, and is keen to build a research culture where research is 'business as usual' for staff teaching on degree and postgraduate programmes. Over recent years, research outputs have slowly risen, although 2018 saw a decrease in the overall number reported. The Research Office is very aware of the mixed reactions staff have to being informed that they have a responsibility to undertake research: the ITP sector as a whole have a focus on applied professions and trades, and many staff who have entered these organisations appear to have little experience, or confidence in undertaking scholarly inquiry. Individual workload models, teaching timetables and employment contracts emphasise teaching activities at the expense of making time for, or prioritising research activity (Begley, et al., 2014). Traditional curricula structures can also be teaching time-intensive, leaving little time for other academic activity (Green et al., 2007).

So what can we do, and what do other organisations do, to encourage more staff to undertake research? Developing a culture where research is visible and valued needs leadership support, and staff goodwill. Simply put, people respond to incentives, and there are numerous permutations being reported, and studied. Internationally there is a growing trend to reward authors when a paper they write appears in journals with high citation impacts. Anecdotally some NZ ITPs are adopting a similar approach, seeking to incentivise researchers with personal, as well as professional recognition and benefits. Other incentives and rewards may also include the academic progress of researchers—remuneration, permanent contracts and promotion (Chandra, 2017). There may be allocation of additional professional development leave, or administrative resourcing to assist with data management – an assistant paid to complete transcriptions or statistical analysis. Recognition and reward can also include extended opportunities to disseminate research (Arcus, 2017). An academic writing coach or mentor may also assist novice researchers, or newly qualified teaching staff to pursue publishing opportunities(Grant, 2008). Additional writing retreats can rejuvenate 'writing lives' (Swaggerty et al., 2011).

This research project sought to establish clarity around what rewards and frameworks are actually in place in the ITP sector, and how researchers feel about these. The context for this study was both

institutional and sector-wide. From Toi Ohomai's (or any single ITP) perspective, to promote positive change, and grow research and researcher capability, we need to understand the options for rewards and incentives that individuals will respond to as well as identifying and dismantling barriers through appropriate resourcing and assistance. For the wider sector looking to the 2020 establishment of a single entity, New Zealand Institute of Skills and Technology, it is likely useful to consider commonalities and anomalies in individual institutional practices.

Literature review

Research productivity and its characterisations

Ways of increasing a tertiary faculty's research outputs have been investigated for nearly a century, with these studies identifying various incentives and rewards associated with research productivity and quality. While productivity can be measured in terms of publications, the research's quality is typically measured on the journal's ranking (Theoharakis & Hirst, 2002). It is accepted that research productivity and quality are known determinants that increase an institute's ability attract quality students and staff (Manning & Barrette, 2005). To motivate research and publications into refereed, top-tier journals, incentive programmes and rewards have been introduced into many tertiary institutions in the last few decades (Manning & Barrette, 2005).

To clarify, incentives and rewards are separate things; incentives are offered prior to work whereas rewards are provided upon the work's completion, hence, rewards are a subset of incentives. Incentive-based programmes offer money, time, recognition, or resource-based incentives which are aligned with their institute's research objectives (Manning & Barrette, 2005). Moreover, the incentives provided to active researchers of vocational institutes are likely to make their salary more competitive with university staff (Manning & Barrette, 2005). Overall, incentives offered to researchers provide them guidance and impetus for developing and accomplishing their research and increase the likelihood that an institute will retain its active researchers (Manning & Barrette, 2005). However, in some of the literature, and in many of the contributions to this study offered by participants, there is considerable cross-over in how these two terms are used.

Bland et al.'s (2005) synthesis of research productivity literature concluded there were three characteristic-based themes, namely: the individual researcher, the faculty's leadership, and the institution's culture. Findings from more recent studies on research productivity vary little from these themes (e.g. Ito & Brotheridge, 2007; Jung, 2012). First, researcher characteristics included their motivation to research, content knowledge, research skills and work habits (Bland et al., 2005). Next, the characteristics of leadership describe the scholarship, research orientation, capacity to fulfil leadership roles, and participative style of a faculty's leaders (Bland et al., 2005). Last, institutional characteristics including the culture, resources, rewards, and mentoring initiatives, which identify aspects of how research is supported by an institution (Bland et al., 2005). These characteristics integrate and interplay with one another toward a conducive setting for research productivity. As this study investigates what might incentivise Toi Ohomai researchers, this review examines each of the various characteristics that affect research productivity, and focuses on how research outputs are incentivised.

Researcher characteristics

One of the main factors in determining research productivity are the characteristics of the individual researcher. Although researchers vary in their approach to conducting research, their commitment to research typically predicates their productivity (Shin & Cummings, 2010; White, James, Burke, & Allen, 2012). Further, researchers who prefer to collaborate with others, likely due to the level of

communication, competitiveness, and accountability, are also more productive (Katz & Martin, 1997; Peltz & Andrews, 1967). The increase in international-oriented and multi-disciplinary journals may also appeal to many researchers' interests in research (Smeby & Try, 2005; Younglove-Webb, Gray, Abdalla, & Thurow, 1999). The researchers' motives, content knowledge, research skills, autonomy, number of projects, and work habits also play a crucial role in predicting their level of productivity (Bland et al., 2005). Other attributes include having a terminal degree, early publishing habits, colleagues who publish, subscriptions to academic journals, a high academic rank, and sound time management skills (Finkelstein, 1984; Zhou & Volkwein, 2004). The literature also suggests that individuals whose research productivity is poor have low levels of the characteristic determinants described here. Ito and Brotheridge (2007) lament academics who, while enjoying the lifestyle their job provides, have no intention to make a significant contribution to their discipline. Bland et al.'s (2005) extensive review and subsequent research suggest there is no substitute for recruiting staff who are passionate researchers and providing them with adequate support. Overall, whether high or low in their drive toward publishing, individual researcher characteristics provide only one, albeit significant, dimension of research productivity.

Leadership characteristics

Another factor that makes researchers' environments conducive to productivity is their faculty's leadership qualities (Dundar & Lewis, 1988). Leadership is critical to the productivity of its research due to the synthesis a faculty's leader cultivates between the researcher, the research culture, and the institution (Bland et al., 2005). Leaders of research productive faculties are described as highly regarded scholars, research oriented, and exhibit an assertive as well as participative leadership style. Further, the leader fulfils some critical research-related activities such as managing, fundraising, and being goal-oriented. In contrast, a researcher's productivity is impinged by a lack professional autonomy and the increase of management surveillance and control (Brotheridge, 2006).

In the PBRF system, academic staff are required to submit, to a panel of their discipline's experts to evaluate and grade, a portfolio which provides evidence of their research productivity (Edgar & Geare, 2013). The grades of individual researchers are averaged and contribute to the overall grade of the researchers' department. It appears that a leader's characteristics have more bearing on a faculty's productivity, particularly within the PBRF framework, than the individual researcher (Edgar & Geare, 2013; Pratt, Margaritis, & Coy, 1999).

Institutional characteristics

The third factor identified in Bland et al.'s (2005) study on researcher productivity was the institution's characteristics. The correlation between an organisation's culture and its performance has long been known (Wilderom, Glunk, & Maslowski, 2000). Research culture is described as the shared attitudes, assumptions, and mechanisms which propagate the value, behaviour, and beliefs in productive research activity (Evans, 2007; Hazelkorn, 2005; Parse, 2007). Fussy (2017) suggests that two characteristics of research culture are its participants' collegiality and learnability, where the shared assumptions and beliefs of researching are learned among colleagues travelling together. These attributes were apparent in the development of the University of Waikato's School of Management Studies (SMS) research culture, whose journey to productivity, between 1989 and 1996, was investigated (Pratt et al., 1999). By continually discussing the imperative of research at meetings, instilling confidence in staff toward their research, and hiring seasoned researchers, the SMS department cultivated a research productive culture (Pratt et al., 1999). Hence, an institution's strategic and purposeful handling of perceptions, attitudes, and resources promote and nourish a research-rich culture.

As a research culture is critical, Bland et al.'s (2005) distillation of research productivity studies unearthed multiple institutional characteristics which contributed toward a faculty's outputs. Bland et al.'s (2005, p. 228) findings outline 15 characteristics of a research productive institution, summarised in Table 1.

Table 1. Fifteen characteristics of a research productive institution

1	Recruitment and selection	Great effort is expended to recruit and hire members who have the training, goals, commitment, and socialization that match the institution
2	Clear coordinating goals	Visible, shared goals coordinate members' work
3	Research emphasis	Research has greater or equal priority than other goals
4	Culture	Members are bonded by shared, research-related values and practices, have a safe home for testing new ideas
5	Positive group climate	The climate is characterized by high morale, a spirit of innovation, dedication to work, receptivity to new ideas, frequent interactions, high degree of cooperation, low member turnover, good leader/member relationships, and open discussion of disagreements
6	Mentoring	Beginning and midlevel members are assisted by and collaborate with established scholars
7	Communication with professional network	Members have a vibrant network of colleagues with whom they have frequent and substantive (not merely social) research communication, both impromptu and formal, in and outside of the institution
8	Resources	Members have access to sufficient resources such as funding, facilities, and especially humans (e.g., local peers for support, research assistants, technical consultants)
9	Sufficient work time	Members have significant periods of uninterrupted time to devote to scholarly activities
10	Size/experience/expertise	Members offer different perspectives by virtue of differences in their degree levels, approaches to problems, and varying discipline backgrounds; the group is stable, and its size is at or above a "critical mass."
11	Communication	Clear and multiple forms of communication such that all members feel informed
12	Rewards	Research is rewarded equitably and in accordance with defined benchmarks of achievement; potential rewards include money, promotion, recognition, and new responsibilities
13	Brokered opportunities	Professional development opportunities are routinely and proactively offered to members to assure their continued growth and vitality
14	Decentralized organization	Governance structures are flat and decentralized where participation of members is expected
15	Assertive participative governance	Clear and common goals, assertive and participative leadership where active participation of members is expected, and effective feedback systems are utilized

As shown, Bland et al's (2005) inventory reinforces the notion that researchers are not productive without institutional support. Here, researchers are more likely to produce research when their employer highly regards, equips, rewards, and makes time for research outputs (Bland et al., 2005; Creswell, 1985). Many of these characteristics are apparent in some New Zealand universities (cf. Edgar & Geare, 2013; Pratt et al., 1999).

As shown, one of Bland et al.'s (2005) institutional characteristics for productivity suggest working within a decentralised or flat organisational structure. However, Toi Ohomai's organisational structure would best be described as hierarchical rather than flat or decentralised. Furthermore, as posited by the Reform of Vocational Education initiative (New Zealand Institute of Skills and

Technology, 2019), New Zealand institutions like Toi Ohomai may become centralised further, reinforcing a seemingly counterproductive setting for producing research outputs. On the other hand, despite increased centralisation in New Zealand universities, their faculties maintain a relatively laissez-faire approach, and operate more or less autonomously (Edgar & Geare, 2013). Therefore, to conserve or promote research productivity in a centralised context, vocational institutions might consider adopting the same attitude toward researchers demonstrated by New Zealand's universities.

According to Bland et al's (2005) summary, time allocated to research is a separate characteristic to rewards, whereas other academics suggest that both factors are seen as rewards (e.g. Manning & Barrette, 2005; Middleton, 2006). Time allocated to research is a crucial factor as it predicts both the perceptions of a researcher's productivity levels and their research outputs (Ito & Brotheridge, 2007). Studies also strongly suggest a complementary relationship between a devotion to teaching and effectiveness in teaching with research productivity (Ramsden & Moses, 1992; Wanner, Lewis, & Gregorio, 1981). Further, due to the nature and shared workload of co-authoring, teachers who supervise graduate students may gain increased opportunities for research outputs (Blackburn & Behymer, 1978; Dundar & Lewis, 1988). Hence, time dedicated to research does not impinge on teaching effectiveness (Feldman, 1987). Therefore, while incentives such as money, promotion, and recognition are crucial, time allocation incentivises research activity, as well as increase the teaching effectiveness of the researcher.

Incentives toward research productivity

Incentives are an important factor in research productivity and take many forms. As described above, incentives are designed to motivate research productivity prior to the work being started. Incentives, such as "rewards" are provided equitably once a defined benchmark has been achieved, and include "money, promotion, recognition, and new responsibilities" (Bland et al., 2005, p. 228). A performance-based system also incentivises research outputs with rewards such as tenure, promotion, increase in salary, among other rewards including further research funding and recognition (Creswell, 1985). Here, active researchers who produce measurable concrete outputs, such as a number of publications, awards, research grants, and other recognised outputs are purposely selected by their institution for promotion (Bland & Ruffin, 1992; Creswell, 1985). In New Zealand, the PBRF system, which collects and assess a portfolio of a researcher's outputs, contributes to the faculty's motivation to conduct research (Edgar & Geare, 2013; Middleton, 2006).

In Bland et al.'s (2005) study, incentives that complement research outputs include the provision of resources, research assistants, and funding, or professional development, and research time allocations. Other incentives related to time include time allocated for lesson planning and funding demands (Middleton, 2006; Teodorescu, 2000). These factors are particularly cogent for new faculty in the first few semesters with an institution, due to their concern for lesson preparation in order to avoid student complaints (Boice, 1992). Other incentives take the form of research budgets, bonuses, merit pay increases, internal and external visibility, travel expenses, research centre funds, appointment to research chairs or professorships, teaching load reduction, and freedom to "teach your research" (Manning & Barrette, 2005, p. 274). In conclusion, most researchers are more productive, in part, due to the incentives and rewards offered by their institution (e.g. Jung, 2012; Middleton, 2006).

Summary

While the focus of this study are the kinds of incentives that might increase the research outputs of Toi Ohomai staff, the review of the literature provides a broader context. Here, three characteristics of research productivity were addressed, namely researcher, leadership, and institutional

characteristics (Bland et al., 2005). Naturally there is a high degree of synthesis between individual researchers, their leadership, and their faculty, and organisational culture and frameworks, as widely reported on in the literature (e.g. Bland et al., 2005; Bland, Seaquist, Pacala, Center, & Finstad, 2002). However, the three characteristics which have been reported on separately in this review are well established as an inquiry model to assess research productivity, and were therefore adopted by the team to develop the interview schedule and thematic analysis for this study (described in the following section). The same three characteristics are then subsequently employed to report our findings.

Methodology

Based on the above considerations, the project team proposed a study with the threefold purpose of: (1) establishing a benchmark of what strategies other higher education ITP providers are using to incentivise and reward researchers for producing quality-assured research outputs; (2) exploring the range of strategies which our own institute's staff consider would offer compelling inducement to increase their own research outputs; (3) proposing recommendations for policy development to our academic board/executive leadership to improve research outcomes and staff engagement in research.

Research design and participants

The research methodology combined a 'desktop review' of other providers' practices, with a small-scale, qualitative inquiry, conducted via interview, with selected academic teaching staff at the host institute. For the review, research managers in the 15 other ITP organisations in New Zealand's higher education sector were contacted via email. Where agreement to participate was indicated, responses were augmented by publically available organisational documents, such as annual reports, and by materials found through their websites. Eleven ITPs contributed to the study, some also forwarding internal policy documents. While reporting was anonymised, all were offered the opportunity to review the aggregated data, and to receive a copy of the final report.

Next, the team proceeded to arrange individual interviews with teaching colleagues, targeting a sample of 3-4 participants from each of our seven faculties. We also wanted to ensure we heard from academic staff representing a breadth of research experience. As previously mentioned, NZQA is our Ministry of Education's agency for monitoring consistency and compliance in the delivery of professional qualifications (Arcus, 2017); one such requirement is that degrees and post-graduate programmes are taught by 'research-active' staff (TEC, 2019). For reporting purposes, our institute has developed a 'traffic light' system, where being 'research-active' is defined as having produced a minimum of two peer-reviewed research outputs over a two-year timeframe. Staff rated 'red' are those teaching on degrees who are required to undertake research but who have so far not produced any research outputs. Staff rated 'amber', whose outputs are still at a low level, may be termed 'novices' or 'new and emerging'. 'Green-lit' staff are active and experienced researchers. Therefore we ensured our 22 colleague-participants were representative of the spread of researcher activity observed across our organisation: six were red, seven were amber, and nine were green.

Table 2. Study participants (n=22)

	BMLS faculty	ECTI faculty	ENSS faculty	PISE faculty	THSI faculty	CWD faculty
'Traffic light' status	1					
Green	2	1	1	2		2

Amber	1	1	1	1	1	2
Red	1	3	1			1

Key to table:

(1) **BMLS: Business, Management and Legal Studies; ECTI: Engineering, Creative, Technology & Infrastructure; ENSS: Education, Nursing & Social Services; PISE: Primary Industries, Science & Environment; THIS: Tourism, Hospitality & Service Industries; CWD: Community, Wellbeing & Development.**

(2) **Traffic light status: Green: individual has met the Toi Ohomai criteria (2 research outputs over 2 years) to be considered 'research-active'; Amber: individual has some level of research outputs but has not fully met the research-active criteria; Red: individual has no research outputs recorded at time of data collection.**

Again, potential participants were contacted by email and invited to an individual interview of approximately 30 minutes. We took care that members of the research team were not interviewing participants from the same teaching team/office, and followed all the usual protocols of anonymity and confidentiality in line with our institute's research and ethics policy, and as outlined in our approved proposal. Interviews were recorded and transcribed, with subsequent text analysis to identify key recurring themes, and collate pertinent quotations. This then allowed comparisons with the literature and the provisions made by other higher education providers, and assisted the team to develop clear recommendations for policy development.

Findings

Research productivity literature (e.g. Bland et al., 2005; Ito & Brotheridge, 2007; Jung, 2012) frequently allude to three characteristic-based strands, namely: the institution's culture, the faculty's leadership, and the individual researcher. Accordingly, this approach was replicated in the current study as a useful way of grouping policies, practices, strategies and incentives which impact on researcher engagement and activity. Although not included in external reporting/publication, for this internal report, Toi Ohomai is indicated with a shaded highlight in Tables 3-5 below.

1. Sector overview: a summary of the data from other ITPs

Institutional culture
As shown in Table 3 below, 10 of the 11 ITP higher education organisations who participated in the study had a designated research office responsible for the key functions of facilitating, approving, managing, funding and promoting research. Three offices also provided one or more quiet rooms for researchers who needed an alternative space to work in. Most (9) received funding through the national PBRF mechanism (previously described in the introduction) in addition to institutionally budgeted resourcing. Many used this towards the cost of appointing formal research mentors, who worked in a range of roles including assistance with proposal and report writing, coordinating inter-disciplinary collaborative research teams, support for data collection and analysis, assistance with dissemination, and academic writing coaching. One ITP employed an external grants writer, and two others hosted international scholars to engage with their own academic staff and assist with capability building. All ITPs allocated time apart from teaching and learning duties for staff teaching on degree programmes to undertake research; a common, although not universal allowance was

20%, or one day a week. Finally, all ITPs celebrated research and researcher success with designated webpages promoting staff and team expertise and achievement.

Table 3. Institutional structures and funding available

ITP	Research office	Research room	PBRF funded	Workload allocation	Research mentor(s)	Research grants writer	Visiting research fellows	Research webpages
A	✓	✓	✓	✓		✓	✓	✓
B	✓		✓	✓				✓
C	✓		✓	✓	✓		✓	✓
D	✓	✓		✓				✓
E	✓	✓	✓	✓	✓			✓
F			✓	✓	✓			✓
G	✓		✓	✓	✓		✓	✓
H	✓		✓	✓				✓
I	✓		✓	✓				✓
J	✓		✓	✓	✓			✓
K	✓			✓	✓		✓	✓

Faculty leadership

Table 4 summarises particular initiatives which occurred at faculty or organisation level, but generally relied on the championing of a leader, rather than governance and management decisions. Institution-generated publications ranged from fortnightly to quarterly newsletters (mainly directed to an internal audience) to annual A4 magazines (both printed and electronic) showcasing research highlights and researcher expertise, and 'hosting' scholarly journals, with external editorial committees and authorship. Three ITPs had their own credit-bearing research qualifications for staff as part of either a required professional development teaching and learning standard, or as an optional higher qualification for academic or career advancement. Most host symposia and conferences where staff can present research alongside external delegates, and most offer skill-building workshops and seminars for staff to build capability, and create inter-disciplinary communities of practice. Off-site, residential writing retreats for staff to complete academic publications with the support of a writing facilitator or coach were also standard practice for most participating ITPs. Two 'unique' strategies were a public lecture series where staff delivered advertised topics to a wider community audience, and a month-long internal focus on celebrating research with events and awards, and a requirement that all teams include research and action plans in meeting agenda.

Table 4. Leadership promotion and advocacy of research

ITP	In-house journal	Annual magazine	Research newsletter	Own research qualification	Own / partnership symposia	Workshops & seminars	Public lecture series	Writing retreat	Annual focus / event
A			✓	✓				✓	
B			✓		✓	✓			
C			✓	✓	✓	✓	✓		
D	✓	✓	✓		✓			✓	
E	✓	✓	✓		✓	✓		✓	
F		✓	✓			✓			
G			✓	✓	✓	✓		✓	✓
H	✓		✓		✓	✓		✓	

I		✓		✓	✓		✓	
J		✓		✓	✓		✓	
K	✓	✓			✓			

The researcher

Results here were a little more varied, as shown in Table 5. Different ITPs had developed a range of solutions in response to researcher reluctance, or querying 'what's in it for me?'. Research awards, usually with funding grants, were often annual, and announced at full staff meetings. Research sabbaticals varied from 1-3 months, and were linked to measurable projects. Cash grants or vouchers on achieving a scholarly publication tended to range in amount according to the status of the publication. These had been trialled at a number of ITPs, but were only currently offered by three at the time of this study. Recognition of post-graduate qualifications was more usually in the form of a gift or vouchers, often made publically in a staff meeting or annual staff function. Research achievement was formally linked to/required for promotion, career development and opportunities in some ITPs, but many others mentioned that this was an informal outcome, although their policies and internal documents did not explicitly frame it as such.

Table 5. Researcher incentives and rewards

ITP	Research award	Sabbatical	Cash / grant for publication	Research social events	Progression	Award / gift for post-grad	Professorial appointments	Committee membership & invitations
A	✓					✓	✓	
B		✓		✓				
C	✓		✓					
D								
E	✓					✓		✓
F	✓	✓		✓				
G	✓	✓	✓		✓		✓	✓
H								
I								
J	✓		✓		✓			
K								

2. Staff interview data – a very brief overview

Research culture needs to start from the top

As foreshadowed in the brief literature review above, several individual interviewees referred to the importance of institutional governance and management leading by example, rather than just rhetoric, in establishing an institutional culture in which research was truly valued (e.g. Wilderom et al., 2000). Representative comments included:

> As an institution, we don't support research that well. It's not a priority.

Our primary purpose here is around teaching.

> If we're told about research it's because it was mandated by a manager, and they're just doing it to tick a box.

It gets brought up when monitors visit. And annually when we're sent a form to fill in.

When prompted about what effective support structures would look like, every participant referred either explicitly, or tangentially, to the challenges of available time, and managing workload. While employment contracts and timetables might appear to have an allocation for research, the reality for many academics is that large class sizes, staff shortages, high demand students (second-language speakers), organisational restructures, belt-tightening budgets, the need for teaching portfolios for progression, and submissions for professional/industry registration, all erode the time available. As one frustrated researcher told us:

Research is something that happens at night-time. You know when the kids are asleep.

At a faculty level, participants valued interest and encouragement from line managers as a key enabler. Examples here included support for complementary skills training necessary to undertake field research, such as use of drones for data collection, and passing on opportunities and invitations received from external organisations seeking research partners. Two participants referred to the value of monthly team phone-conference meetings to share research ideas, progress and outcomes. Others would like more:

I think that they should be creating a research focus meeting, at least once a month…the question should be asked at any team meeting: "how's your research going tell us about that". Don't just tell us about teaching and about, you know, the day-to-day grind, tell us about something that's exciting, like research or consultancy work that you're doing, how you're providing leadership in the community.

One participant spoke of the value of trust and the freedom this created as a key element in her own research productivity:

My [immediate leader's] not active...but they are supportive. Basically they sign off pretty much whatever my application is, and whatever my estimation of the time needed. There's a strong trust there, as long as we meet our teaching requirements, we can manage our available time outside this as we see fit.

A huge range in research motivation, philosophy, enablers and impediments

Since we deliberately sought the perspectives of novice, emerging and experienced researchers (identified through our 'traffic light' system described in the methodology), it is unsurprising that an array of contributions offered at times, a number of contradictions and incongruities. Most study participants were confident describing a personal research philosophy, e.g.:

Research should be liberatory (sic) and emancipatory and critically engaging for all involved.

Research is to explore the unknown. I am telling people a story that might not fit with what is commonly known. It's a freedom, you can explore the way you want and the path you want to choose.

Yet for others, it was a fearful place:

Really daunting…how big it feels, and we bandy the word around but so often it's hard to actually get a tangible note of what it means and how you can work within the research field. I never took advantage of the writers' retreats but I can now see that would probably be quite beneficial… I didn't even know what they did so I never went.

An almost universal finding was an enthusiasm for collaborative team projects over individual research. Typical advantages cited included access to different sets of expertise, a shared workload,

the opportunity to balance time commitment, increased productivity and the need to be accountable in meeting deadlines. However, two comments related to a concern about loss of control, and quality and input variability proved the exception to this norm.

The issue of research workload allocations emerged frequently as both an enabling and impeding factor, with clear agreement from researchers of all levels that this needed to be ring-fenced by leaders, and respected by management. Many of the strategies participants suggested to increase their own research productivity echoed those offered by other ITPs, if not our own, showing how small a higher education community really is: academics talk to one another! There were calls for more workshops and staff training, more and team-targeted off-campus writing retreats, and resourcing for research writers and administrative research assistants. Nearly half the participants would like a mentor to guide, bounce ideas with, co-author and advocate for them. Three felt payments for publishing would be a strong motivation; seven of the 22 interviewees wanted more opportunities to travel and attend conferences and fora, to present their own work, and to grow professional networks.

Conclusion

The focus of this study was the kinds of incentives that might increase the research outputs of our own academic staff, and the strategies which others in our ITP sector have adopted. The review of the literature shows that this is not a new challenge for higher education, nor is it isolated to New Zealand. By examining the three characteristics of research productivity, namely institutional, leadership, and researcher characteristics (Bland et al., 2005), we have endeavoured to provide a snapshot of both the theory and some practices related to the topic, with the hope that new levels of understanding will assist Toi Ohomai to grow research outputs and researcher capability.

Dissemination of this study's key findings has already begun, with conference presentations, a poster, and a peer-reviewed paper. Further writing is planned for 2020, as well as internal promotion to Faculty Deans and leadership via the Research Team – subject to project team members' availability. We note here that our own group of (originally five) researchers has experienced some of the challenges mentioned by participants, with one member's departure (Kalem Banks), another's secondment into a new role, and a third still waiting to hear if a fixed term employment contract will be renewed. Of course, it's easy to focus on gaps and shortcomings in such a time of almost unprecedented sector upheaval, but what would a vibrant, research-active and research-enthused organisational culture look like? Looking optimistically to the future, we leave the final word to the vision of one of our participants:

> We need to invigorate or reinvigorate our senior researchers as well as our junior researchers, and try and get the perfect research cycle going with staff interacting with community and industry, making some valuable gains both personally and for the institution, and then bringing all that back into the classroom to reinvigorate and support their students. So that's the perfect circle, I reckon. If we could get that going, and really believed in the value of research, then I think we could make some ground.

References

Arbitris, A., & McCook, A. (2017). *Cash bonuses for peer-reviewed papers go global*. Retrieved from https://www.sciencemag.org/news/2017/08/

Arcus, K. (2017). Building faculty research capability: A strategic approach. *Making Connections – Whanaungatanga: Proceedings of the 2016 National Tertiary Learning and Teaching Conference.* Rotorua, Toi Ohomai Institute of Technology.

Begley, C., McCarron, M., Huntley-Moore, S., Condell, S. & Higgins, A. (2014). Successful research capacity building in nursing and midwifery in Ireland: An exemplar. *Nurse Education Today, 34,* 754-760. doi:dx.doi.org/10.1016/j.nedt.2013.09.016

Blackburn, R., & Behymer, C. (1978). Research note: Correlates of faculty publications. *Sociology of Education*, *51*(2), 132–141.

Bland, C., Finstad, D., Risbey, K., & Staples, J. (2005). A Theoretical , Practical , Predictive Model of. *Educational Policy*, *80*(3), 225–237.

Bland, C., & Ruffin, M. (1992). Characteristics of a productive research environment: Literature Review. *Academic Medicine*, *67*(6), 385–397.

Bland, C., Seaquist, E., Pacala, J., Center, B., & Finstad, D. (2002). One School's Strategy to Assess and Improve the Vitality of Its Faculty. *Academic Medicine*, *77*(5), 368–376.

Boice, R. (1992). *The new faculty member*. San Fransisco: Jossey-Bass Publishers.

Brotheridge, C. (2006). *A call for autonomy: Protecting Léon Foucault's progeny from Michel Foucault's panopticon*.

Chandra, S. (2017). *A pay-per-publication system to spur research*. Retrieved from https://www.livemint.com/Opinion/KmJJNVCt5duStAobLUwkeK/

Creswell, J. (1985). *Faculty Research Performance: Lessons from the Sciences and the Social Sciences. ASHE-ERIC Higher Education Report No. 4.* Washington, DC.

Dundar, H., & Lewis, D. (1988). Determinants of research productivity in higher education. *Research in Higher Education*, *39*(6), 607–631.

Edgar, F., & Geare, A. (2013). Factors influencing university research performance. *Studies in Higher Education*, *38*(5), 774–792.

Evans, L. (2007). Developing research cultures and researchers in higher education: The role of leadership. In *Paper presented at the annual conference of the Society for Research into Higher Education (SRHE)*. Retrieved from http://www.education.leeds.ac.uk/assets/files/staff/papers/SRHE-paper-submission-0132.doc

Feldman, K. (1987). Research productivity and scholarly productivity of college teachers as related to their instructional effectiveness: A review and exploration. *Research in Higher Education*, *26*(3), 227–298.

Finkelstein, M. (1984). *The American Academic Profession: A Synthesis of Social Scientific Inquiry since World War II.* Columbus: Ohio: State University Press.

Fussy, D. (2017). *The Development of a Research Culture in Tanzania's Higher Education System*. Unversity of Glasgow.

Grant, B. (2008). *Academic writing retreats : a facilitator's guide*. Milperra, N.S.W. : Higher Education Research and Development Society of Australasia.

Green, B., Segrott, J., Priest, H., Rout, A., McIvor, M., Douglas, J., Flood, Y., Morris., & Rushton, C. (2007). Research capacity for everyone? A case study of two academic nursing schools' capacity building strategies. *Journal of Research in Nursing, 12*(3), 247-265. DOI: 10.1177/174498710708405

Hazelkorn, E. (2005). *University research management: developing research in new institutions*. Paris: OECD.

Ito, J. K., & Brotheridge, C. M. (2007). Predicting Individual Research Productivity: More than a Question of Time. *Canadian Journal of Higher Education*, *37*(1), 1–25.

Jung, J. (2012). Faculty Research Productivity in Hong Kong across Academic Discipline. *Higher Education Studies*, *2*(4), 1–13.

Katz, J. S., & Martin, B. R. (1997). What is research collaboration? *Research Policy*, *26*(1), 1–18. https://doi.org/10.1016/S0048-7333(96)00917-1

Manning, L., & Barrette, J. (2005). Research Performance Management in Academe. *Canadian Journal of Administrative Sciences*, *22*(4), 273–287.

Middleton, S. (2006). Research assessment as a pedagogical device: A Bernsteinian exploration of its impact on New Zealand's subject/s of education. In *Australian Association for Research in Education Conference*. Adelaide, Australia.

New Zealand Institute of Skills and Technology. (2019). *Proposal on a single New Zealand Institute of Skills & Technology Technical discussion document*. Wellington, NZ. Retrieved from https://conversation.education.govt.nz/assets/RoVE/New-Zealand-Institute-of-Skills-Technology-technical-discussion-document.pdf

Parse, R. (2007). Building research culture. *Nursing Science Quarterly*, *20*(3), 197–197.

Peltz, D., & Andrews, F. (1967). *Scientists in organizations: Productive climates for research and development.* New York: John Wiley and Sons.

Pratt, M., Margaritis, D., & Coy, D. (1999). Developing a research culture in a university faculty. *Journal of Higher Education Policy and Management*, *21*(1), 43–55.

Ramsden, P., & Moses, I. (1992). Associations between research and teaching in Australian higher education. *Higher Education*, *23*(3), 273–295.

Shin, J. C., & Cummings, W. K. (2010). Multilevel analysis of academic publishing across disciplines: Research preference, collaboration, and time on research. *Scientometrics*, *85*(2), 582–594. https://doi.org/10.1007/s11192-010-0236-2

Smeby, J. C., & Try, S. (2005). Departmental contexts and faculty research activity in Norway. *Research in Higher Education*, *46*(6), 593–619. https://doi.org/10.1007/s11162-004-4136-2

Swaggerty, E., Atkinson, T., Faulconer, J., & Griffith, R. (2011). *Academic Writing Retreat: A Time for Rejuvenated and Focused Writing.* Stillwater, OK.: New Forums Press, Inc.

TEC. (2019). *Improving research quality: The interim results of the PBRF 2018 quality evaluation*. Retrieved from https://www.tec.govt.nz/assets/Publications-and-others/e9b4639364/Improving-Research-Quality_The-interim-results-of-the-PBRF-2018-Quality-Evaluation.pdf

Teodorescu, D. (2000). Correlates of faculty publication productivity: A cross-national analysis. *Higher Education*, *39*(2), 201–222.

Theoharakis, V., & Hirst, A. (2002). Perceptual differences of marketing journals: A worldwide perspective. *Marketing Letters*, *13*(4), 389–402.

Wanner, R., Lewis, L., & Gregorio, D. (1981). Research productivity in academic: A comparative study of the Sciences, Social Sciences and Humanities. *Sociology of Education*, *54*(4), 238–253.

White, C. S., James, K., Burke, L. A., & Allen, R. S. (2012). What makes a "research star"? Factors influencing the research productivity of business faculty. *International Journal of Productivity and Performance Management*, *61*(6), 584–602. https://doi.org/10.1108/17410401211249175

Wilderom, C., Glunk, U., & Maslowski, R. (2000). Organizational culture from a network perspective. In N. Ashkanasy, C. Wilderom, & M. Peterson (Eds.), *Handbook of organizational culture and climate*. London: Sage.

Younglove-Webb, J., Gray, B., Abdalla, C. W., & Thurow, A. P. (1999). The Dynamics of Multidisciplinary Research Teams in Academia. *The Review of Higher Education*, *22*(4), 425–440.

Zhou, Y., & Volkwein, J. F. (2004). Examining the influences on faculty departure intentions: A comparison of tenured versus nontenured faculty at research universities using NSOPF-99. *Research in Higher Education*, *45*(2), 139–176. https://doi.org/10.1023/B:RIHE.0000015693.38603.4c

Appendix

Semi-structured interview question guide

1. **Opening questions – 2 min**
   I.   Tell us about yourself: (Name, gender, highest qualification, programme you teach)
   II. How long have you been in the role?
2. **Introductory questions – 5 mins (Researcher characteristics)**
   I.   What research experience, if any, have you had?
        a) Any publications or other outputs?
        b) Masters or post-graduate research?
        c) Research methods paper? *Yes*
   II. If applicable, discuss your current research. Or what would like you to be involved in, if anything?

        a) If nothing, is this because you don't know of any, or because nothing appeals?

   III. Preference for independent or research team environment? – Why?

   IV. How many people do you work closely with who conduct research?

        a) Do these people motive you to increase your research productivity?

   V. What attracts or excites you about doing research?

3. **Transition questions – 5mins (Leadership characteristics)**

   I. How research active is your leadership team? Discuss.

   II. Describe how your leadership encourages you (or your colleagues) with research

   III. How might your faculty leaders increase their support of your (or your colleagues') research productivity?

   IV. How is conducting research promoted by your faculty

        a) In meetings

        b) to you personally

4. **Key questions – 8 mins (Institutional characteristics (incl. incentives)**

   I. How would a lack of research experience affect one's desire toward conducting research?

        a) What kind of incentives would address this issue?

   II. What incentives or rewards toward research productivity are you aware of in T-O?

        a) Do these incentives motivate you to carry out research? How?

        b) What other incentives are likely to motivate you? Why?

   III. What incentives are you aware of in other institutions?

        a) Describe how these incentives might increase T-O research productivity

5. **Ending questions**

   I. Overall, what do you believe obstructs research productivity at T-O the most?

6. **Summary question** – Interviewer provides a 2-3 minute summary of the discussion

        a) Have I correctly described what was said?

7. **Final question** - The purpose of this study is to understand what incentives would motivate research productivity at T-O.

   I. Is there anything we should have talked about but didn't?