Identity, Well-being, and Work Outcomes in University Early Career Academics: Survey Findings

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Table of Contents

Executive Summary

Background and Context

Early career academics within universities (i.e., Teaching & Research and Research-focussed staff are typically in their first 8-10 years post-PhD (Christian et al., 2022; The University of Queensland, 2022) and play a key role in the production of high-quality research and delivery of education in the university sector. These staff face significant professional challenges, including job insecurity, as well as highly competitive and demanding environments (Holley et al., 2018); all of which impact their well-being and work outcomes. Despite some initial evidence that workgroups play a role in buffering these challenges (e.g., Merga & Mason, 2021), few investigations have directly examined the role of workgroup belonging for well-being and career outcomes. Our program of research fills this gap by investigating the contribution of workgroup networks to early career academic's well-being, work, and career outcomes. This report summarises findings from a quantitative study (Phase 2) that was designed to complement our earlier qualitative study (Phase 1; Dawson et al., 2022).

Method and Results

An online survey was completed by 210 early career academics (59.05% women; 39.05% men; 1.90% queer/self-described) from the University of Exeter (UE; United Kingdom; n = 25) and the University of Queensland (UQ; Australia; n = 185). The survey comprised three components; (1) demographic questions, (2) an online Social Identity Mapping task to capture the nature and content of workgroups, and (3) a series of well-being, work, and career outcome indicators.

A mixed-method analytical strategy focused on uncovering the type, nature, and outcomes associated with workgroup memberships (i.e., local and central). Four phases of analysis were conducted and key findings are summarised below.

1. Qualitative descriptors of the nature of both local and central workgroups available to staff. This analysis revealed a relatively equal proportion of local groups (48%) and central groups (52%), with the local comprising a higher proportion of positively rated groups.
2. Descriptive statistics indicate that staff generally perceive their workgroups favourably and identified strongly with their profession. Nevertheless, staff also reported moderate levels of burnout and high levels of job insecurity.
3. Central vs. local workgroups made unique contributions to staff outcomes. Specifically, local workgroups that were positive, supportive, and had effective leadership uniquely predicted well-being and work outcomes. Central workgroups that were positive, supportive, and had effective leadership uniquely predicted career progression opportunities, within and outside of academia.
4. A supplementary analysis revealed the workgroup characteristics of staff reporting the lowest (bottom 25%) vs. highest (top 25%) well-being. Compared to early career academics reporting the lowest well-being, those reporting the highest well-being experienced their workgroups as more positive, supportive, and better led. The latter group also reported stronger professional identification, greater work satisfaction and career opportunities, as well as lower job insecurity and toxicity.

Recommendations

The findings point to the importance of investing in both local and central workgroups – ensuring that they are effectively led, supportive, and recognised as a positive resource. We identify several strategies to harness and strengthen positive workgroup culture to help counter the negative impacts of job insecurity. This includes a review of the current mentoring, leadership, and voice practices, particularly at the local group level, and suggestions for leadership training that targets the key issues of workgroup culture the research identified.

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This program of work was developed to explore and interrogate the role that workgroup memberships (e.g., with one's discipline, laboratory, and wider university groups), and the social identities that underpin them (e.g., as nurses, members of the Social Change lab, UQ or UE staff) play in early career well-being, work, and career outcomes. Previous research has documented the positive impact of workgroups, particularly those based within local networks (e.g., peer groups, lab groups) on outcomes such as the effectiveness of mentoring efforts and peer support (Merga & Mason, 2021). However, understanding how the nature of these workgroups impact outcomes is more complex, and questions remain about the workgroup characteristics associated with more positive experiences. Our program of research aimed to address this gap and provide a deeper understanding of the role that workgroups play in the outcomes of early career academics.

The project had two phases. An initial qualitative phase involved semi-structured interviews with 57 early career academics from the University of Exeter (UE; United Kingdom; n = 19) and the University of Queensland (UQ; Australia; n = 38). Analysis of these data uncovered three overarching themes:

1) **Early career inhibitors** characterised primarily by extreme job precarity/insecurity, unclear and demanding work expectations, and a lack of value and voice.
2) **Enabling workgroups** were described as providing a positive source of influence, including supervisors and mentors that offered protection from the harsh reality of academia.
3) **Importance of supervisors and mentors** in shaping one's experience. Supervisors who were described as positive were seen as encouraging of work-life balance, professional development, and collaboration. Supervisors who were seen to be more hostile, fostered unhealthy competition and did not protect from heavy workloads that negated work-life balance.

The results of the full thematic analysis are detailed in a separate report titled: ECA/R Identity, Well-being, and Research Engagement Project: Qualitative Investigation Findings (Dawson et al., 2023)**.** A summary of the key findings alongside proposed recommendations is located in Appendix A.

These qualitative findings and the results of previous university surveys (i.e., PULSE and Voice Surveys) were used to inform the second, quantitative, phase of this project which is the focus of this report. The aim of this phase of work was to examine the effects of workgroups and workgroup culture on well-being, work, and career outcomes, (e.g., work satisfaction, job insecurity, and career progression opportunities), incorporating a new UQ developed tool, *Social Identity Mapping*, to visually map and quantify these relationships.

Study Method

Procedure and Sample
Participants were early career academics from the University of Queensland (UQ; Australia) and the University of Exeter (UE; United Kingdom). Participants were provided with a link to an online survey either via email invitation to all early career academics, members of the Early Career Academic Committee, UQ and UE Researcher Development units, or via word of mouth. Participation was informed and voluntary. After consenting to take part, participants completed a survey comprising three parts: (1) demographic questions, (2) an online Social Identity Mapping tool to capture the nature and content of early career academic's workgroup memberships, and (3) well-being and career outcome questions. The full survey is provided in Appendix B.

The sample comprised 210 participants (59.05% women; 39.05% men; 1.90% self-described); 185 from UQ and 25 from UE[1] (see Tables 1 and 2 for summary statistics). Forty-one schools and institutes were represented from UQ, and twenty-one from UE. To protect anonymity and maintain consistency with Phase 1, we report findings using University of Exeter's faculty naming conventions (see Table 2). Here the research team worked to organise each of the schools/institutes reported into their most logical faculty group.

Table 1
Participant Summary Statistics: Gender, Age, and Caregiver Status by Job Type

Job Type	University of Exeter (*n* = 25)				University of Queensland (*n* = 185)				Sample total (*n* = 210)			
	n	Gender W:M:O	$\bar{\chi}$Age	Carer Status (y)	*n*	Gender W:M:O	$\bar{\chi}$Age	Carer Status (y)	*n*	Gender W:M:O	$\bar{\chi}$Age	Carer Status (y)
Research Focused	21	12:8:1	37.3	6	139	84:55:0	37.0	70	160	96:63:1	37.0	76
Teaching Focused/ Teaching & Research Focused	4	3:1:0	34.3	0	46	25:18:3	41.5	23	50	28:19:3	40.9	23
Total	25	15:9:1	36.8	6	185	109:73:3	38.1	93	210	124:82:4	37.9	99

Note. W:M:O = Women:Men:Other (prefer not to answer, non-binary, gender queer/gender fluid). Teaching focused and teaching and research focused participants combined to protect participant anonymity. Carer status = Caregiver status.

Table 2.
Participant Summary Statistics: Ethnicity and Faculty/Discipline

Ethnicity	University of Exeter (*n* = 25)	University of Queensland (*n* = 185)
African or Middle Eastern	-	4
Americas	-	8
Asian	-	40
Asian Indian	1	-
Australian	-	57
White British	18	-
White Irish	1	-
White Other	3	-
Black Other	1	-
Anglo-European	-	25
Other European (not Anglo-European)	-	21
Indigenous Australian or Torres Strait Islander	-	7
New Zealander and Pacific Islander	-	8
Mixed/Multiple Ethnicity	-	8
Undisclosed	1	7
Faculty/Discipline		
Faculty of Health & Life Sciences	9	56
Faculty of Environment, Science, & Economy	12	80
Faculty of Humanities, Arts & Social Sciences	3	19
Undisclosed	1	30

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[1] The disruption within UK universities at the time of this survey (December 2023) lead to significant recruitment challenges. As a consequence, participation from UE staff was lower than anticipated.

Note. Differing options were available for UQ and UE participants in light of demographic differences across the two contexts. Census data were consulted for options presented to participants.

Measures

Demographics

Participants were asked to provide information about their age, gender identity, ethnicity, and workplace characteristics. The latter comprised work capacity (e.g., full-time), appointment type (e.g., fixed-term), job category (e.g., research-focused), and workgroup identification (i.e., with other early career academics, academia in general, their profession, their school/institute, and their university).

oSIM Activity

Completion of online Social Identity Mapping involved four stages. First, participants were asked to identify, name, and then size their workgroups based on how positively they felt about each group on a 5-point scale (smallest size = *very negative*, largest size = *very positive*). Second, for each workgroup, participants were asked to use a 7-point scale to rate strength of belonging (1= none, 7= very much), support received (1= none, 7= very much), and amount of time engaged (1= barely any time, 7= almost all my time) with each group. Next, they were asked to describe, in a few words, the work culture of each group. Finally, up to six workgroups per participant were randomly selected from the mapping tool, and for each, participants were asked to rate the effectiveness of its leadership and mentorship, and the toxicity of the workgroup culture.

Well-being, Work, and Career Outcome Measures

Participants responded to a series of questions to capture well-being, work, and career outcomes. Well-being was indexed using validated and published scales of burnout (Steffens et al., 2014), thriving (Sue, Tay, & Diener, 2014), loneliness (Snape & Martin, 2018), and psychological distress (Kessler et al., 2003). Work and career outcomes were assessed using measures of job satisfaction, perceived toxicity, job security (Fischmann, 2021), and perceived career progression opportunities.

Analysis reporting strategy

The findings from analysis are reported in four parts. These captured the following:

1. **The type and nature of workgroups.** As no previous study has focused on the influence of particular workgroups on the work outcomes of early career academics, we first describe the different types of workgroups in participant's networks before using content analysis to understand workgroup characteristics (e.g., to capture what characterises positive and negative groups).
2. **Descriptive statistics.** Next, we report the descriptive characteristics and statistics across all key measures. This summarizes staff perceptions of their 1) workgroups, and 2) well-being, and 3) work/career status.
3. **Role of staff workgroups for outcomes**. This considered the role of local and central workgroup characteristics on well-being and career outcomes. This afforded empirical insight into how certain types of workgroups, and their nature, relate directly to a series of key outcomes.
4. **Workgroup features of staff who are higher and lower in well-being**. This supplementary analysis focused on staff reporting the highest well-being (i.e., top 25%), and the lowest well-being (i.e., bottom 25%) to gain an impression of their workgroup, identification, and job characteristics.

In light of the lower rates of participation from UE (*n* = 25), compared to UQ (*n* = 185), we ran analysis with and without the data collected from this University. Across the four stages of analysis, the empirical patterns were broadly consistent when UE data was included, compared to excluded. Thus, the results are reported for the full sample.

Results

01 Charaterising Workgroups

The first stage of analysis focused on defining characteristics of early career academic's workgroups. Of the 815 workgroups identified and described, the majority (i.e., 542, 67.0%) were rated by participants as positive and, among these, supportive experiences were described most frequently (47.8%). Only 94 (12.0%) were perceived as negative and staff characterised these groups as ones in which they felt undervalued (27.7%), disconnected (26.6%), and divided (26.6%). The remaining 179 workgroups (22.0%) were rated as neutral and most frequently described as conscientious (34.1%). As we are interested in the workgroups most influential on staff experiences, we focused on those described as positive and negative (see Appendix C).

Table 3 provides a list of group descriptions and their definitions based on participant responses. This is followed by Figure 1 showing these descriptions aligned with groups they experienced as positive or negative. These data revealed subtle differences between positive and negative group experiences as a function of their location within the institutions; as local and central). Local workgroups were those based in respondents' schools or institutes (e.g., research labs and teaching groups) and central workgroups were those based in faculties and the wider university (e.g., faculty teaching and research committees). Given the changes over time in resourcing at these levels, and thus differentiating them in analysis allowed consideration of their influence on staff outcomes and where future resourcing may be best targeted. We therefore report staff experiences of local and central groups separately.

On average, the proportion of local (48%) and central (52%) workgroups was fairly equal. Local groups were associated with a higher proportion of more positively rated groups, than in central groups . In addition, membership in local groups appeared to provide both greater and more diverse positive experiences in comparison to membership in central groups (refer to Appendix C for details).

Table 3.

Descriptors of positive workgroups

Positive group characteristics	
Supportive	Groups were described as being generally helpful; providing technical help (e.g., assistance in completing a particular task), professional help (e.g., with administrative duties, staff role), and personal support.
Collaborative	Groups that included others with whom one may work with and exchange work related ideas.
Receptive	Groups where people felt included and respected. Responses emphasized group diversity, feeling listened to, openness to ideas, and promotion of progressive policies.
Stimulating	Groups were described as engaging, interesting, rewarding, and involved in creative projects. Examples included having opportunities to working alongside successful academics and engaging in meaningful work.
Positive leadership	Leadership in these groups was characterised by strong communication, provision of clear and positive direction, and a supportive management style.
Aligned	Group members were described as sharing similar values and objectives in their work.
Social	Members of these groups were socially connected and spent time with their colleagues outside of working hours.

Table 4.
Descriptors of negative workgroups

Negative group characteristics	
Disconnected	Groups where members had little interaction, both professionally and socially.
Undervalued	Groups in which people described feeling unheard and that their knowledge and expertise was underappreciated. Participants also described a lack of autonomy in these groups.
Divided	Groups characterised by membership with competing priorities. Often, these groups included members who were described as 'self-interested.'
Competitive	Groups that prioritized the importance of outputs, often to the extent that members felt they were in competition with each other.
Poor leadership	Groups with poor or absent leadership.
Exclusive	Groups that were experienced as unwelcoming, and where some members were not included.
Toxic	Groups described as having a poor working culture. Bullying was a strong feature of these groups.
High workload	Groups characterised by high workloads and an expectation of overwork.

Figure 1: Diagram depicting the type (% of groups recorded) and nature (% of groups rated +/- within each type) of workgroups described by early career academics.

Types of Workgroups   Nature of Workgroups

Positive Groups (95%)
Supportive, collaborative, receptive, stimulating, and well-led

Local (48%)
Within school and/or Institute (e.g., lab or teaching group)

Negative Groups (5%)
Very few. Toxic, exclusive, divisive, disconnected, poorly led.

The type and nature of early career academic workgroups

Positive Groups (74%)
Supportive, collaborative & receptive

Central (52%)
Within faculty and/or university (e.g., Faculty committees)

Negative Groups (26%)
Undervalued, divided, disconnected, poorly led

02 Descriptive Statistics: Key Measures

Descriptive characteristics across all key measures are reported in Figure 2 to Figure 5. These data offer a snapshot of 1) how staff generally perceived their workgroups, 2) the state of their well-being and attributes of their job/career, and 3) level of identification with their workplace.

Descriptive data are presented in the form of box and whisker plots. They capture the lower quartile (25th percentile), the median, and the upper quartile (75th percentile). The blue box highlights the interquartile interval (50% of the data), and the whiskers reflect the minimum and maximum scores. Means and standard deviations for each scale are presented in brackets below the scale label.

Staff perceptions of their workgroups

Figures 2 and *3* capture workgroup characteristics as measured using the oSIM tool. *Figure 2* shows that across their various workgroups, respondents experience moderate amounts of positivity and support, and slightly higher levels of belonging. *Figure 3* shows that rates of effective leadership and mentorship are above the midpoint of the scale across workgroups. Levels of perceived workgroup toxicity were relatively low overall.

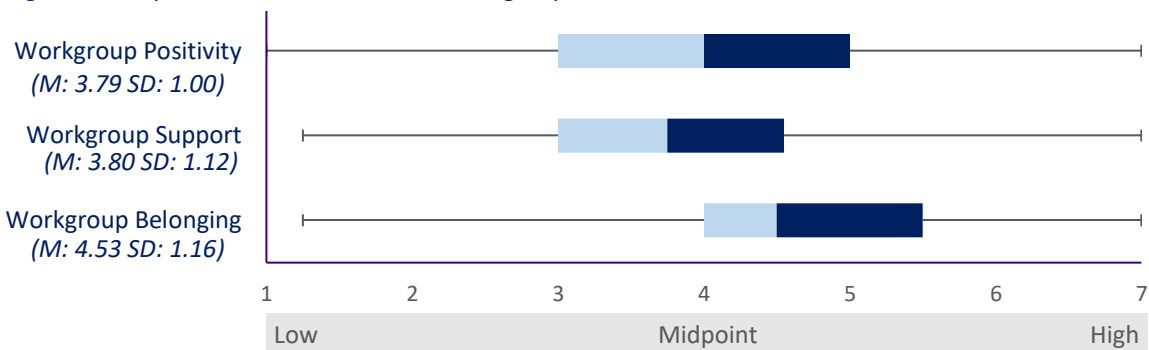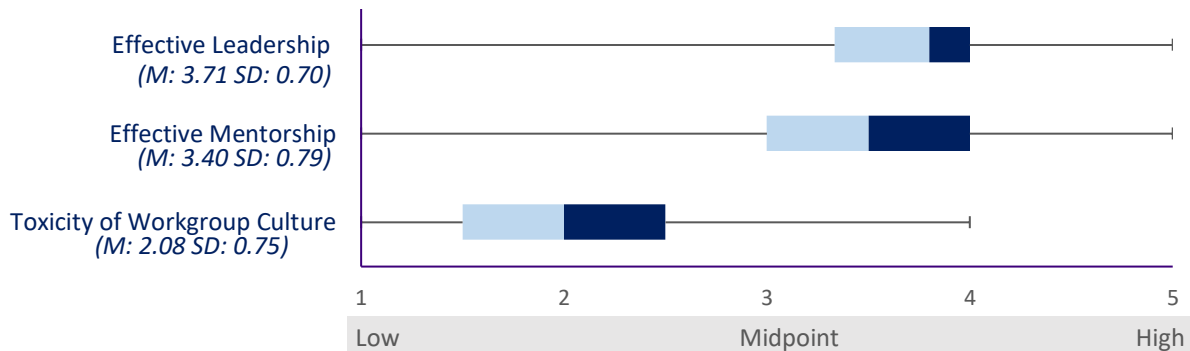*Figure 2: Sample characteristics* for staff workgroup characteristics - 1.

Figure 3: Sample characteristics for staff workgroup characteristics - 2.

Staff well-being and career characteristics

Figure 3 depicts the box and whisker plots for all well-being and career outcome measures. In terms of well-being, staff reported experiencing above mid-point levels of thriving, but also moderate levels of burnout. Experiences of job insecurity for early career academics were very high. Job satisfaction was high on average, despite staff feeling that their career progression opportunities within academia were limited.

Figure 4: Sample characteristics for staff well-being and career outcomes
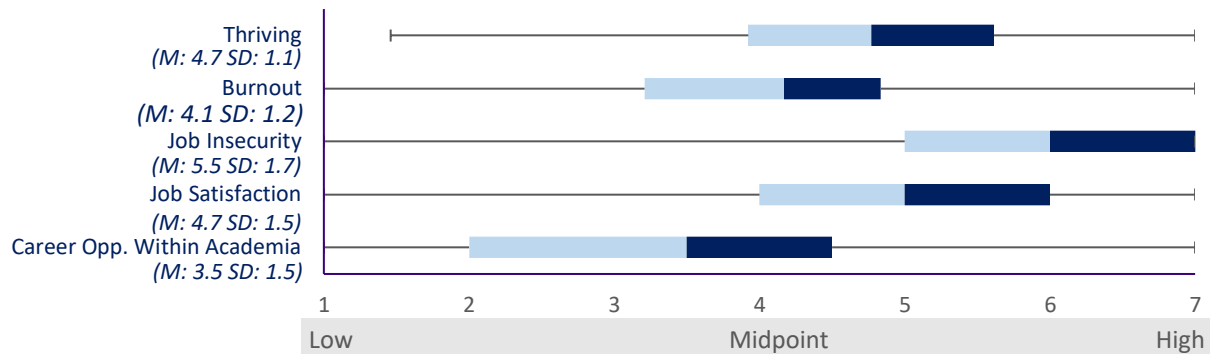
Workplace Identification characteristics

Figure 5 shows the box and whisker plots for all identification measures. Staff report above mid-point levels of identification across the board. Identification as an early career academic (ECA) and researcher (ECR) was highest on average. However, there was greater variability in this sense of identification compared to other forms of professional identification. This suggests that although many of our participants reported very high levels of identification with other ECAs and ECRs, there is a negative skew to this distribution. This finding suggests there is ambiguity among some respondents of what it means to identify as ECA and ECR.

Figure 5: Sample characteristics for staff identification
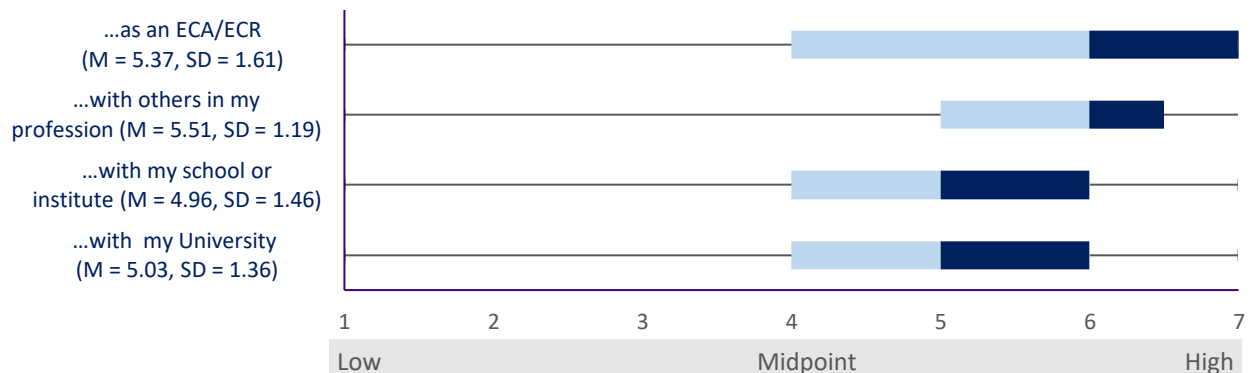
03 The Role of Belonging to Local and Central Workgroups on Staff Outcomes

In bringing together early career academic workgroup experiences with well-being and work outcomes, the final stage of analysis aimed to identify unique predictors of these outcomes to better understand where to invest resources to support staff outcomes. Specifically, we examine the contribution of local and central workgroup characteristics on staff well-being, work, and career outcomes via series of multiple linear regressions (see Appendix E for detail on specific effects).

The analysis showed that belonging to both local and central workgroups contributed to staff outcomes (see *Figure 6* below). However, belonging to local workgroups uniquely predicted particular outcomes over that of belonging to central workgroups. Specifical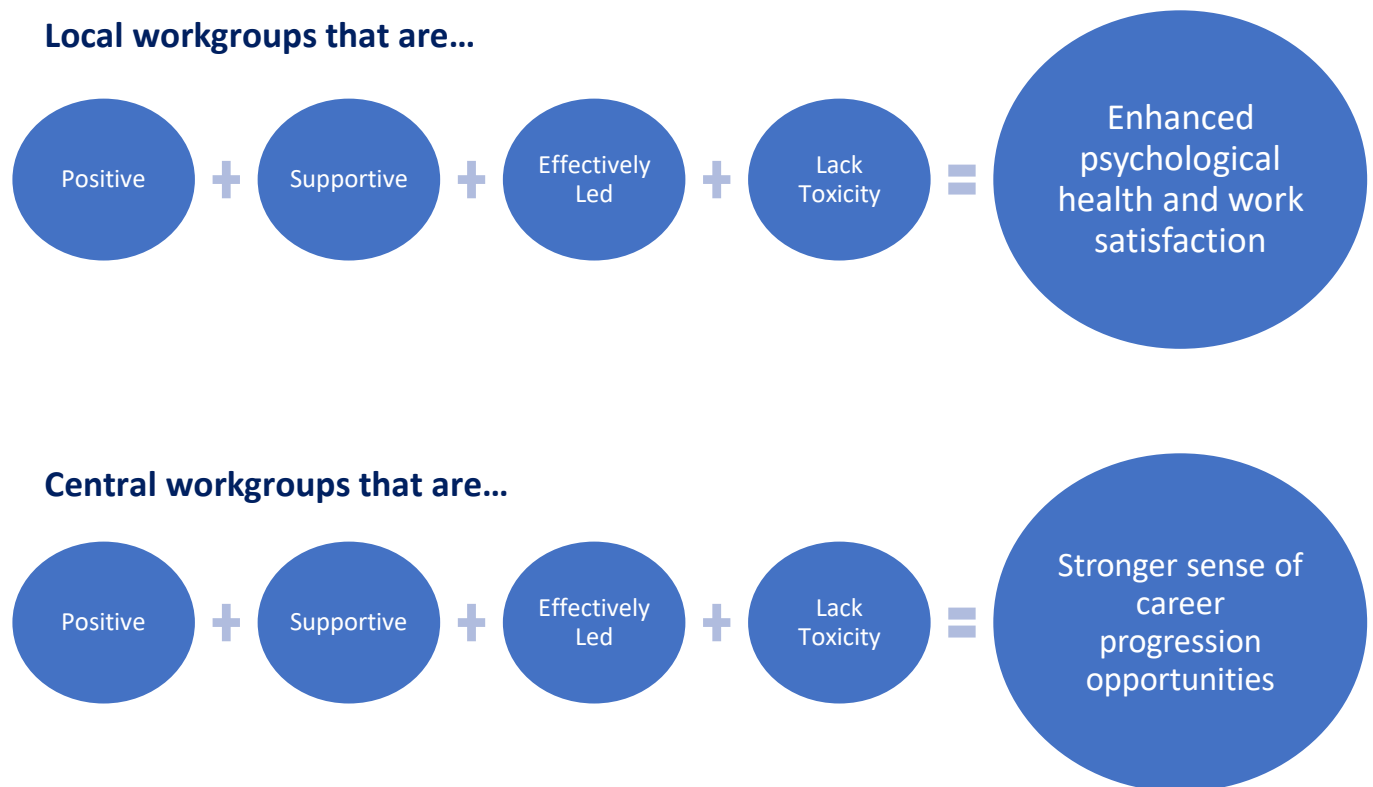ly, when local workgroups were **positive**, **supportive**, **led effectively,** and **lacked toxicity,** they explained greater variance across all **well-being outcomes** (i.e., on measures of well-being, thriving, burnout, psychological distress, and loneliness). Clearly, it is not the case that all local workgroups were attributed these characteristics; some were experienced as distinctly negative. What the analysis shows is that where local groups were characterised by these 4 factors, they were more likely to be associated with better well-being outcomes and work satisfaction for staff. This suggests that investing in building and strengthening such local networks might help to enhance staff well-being.

The unique contribution made by belonging to central workgroups was in strengthening staff perceptions of their **career opportunities** within and outside academia. But again, the analysis only shows that this is more likely when these central workgroups are perceived as being more **positive**, more **supportive**, **effectively led,** and less **toxic**. Thus, in line with the above interpretation, investing in building these four characteristics of central workgroups can help staff feel they have opportunities for career progression.

Figure 6: The type and nature of workgroups predicting consistent unique variance in outcomes

Local workgroups that are…

Positive **+** Supportive **+** Effectively Led **+** Lack Toxicity **=** Enhanced psychological health and work satisfaction

Central workgroups that are…

Positive **+** Supportive **+** Effectively Led **+** Lack Toxicity **=** Stronger sense of career progression opportunities

04 Workgroup features associated with higher and lower well-being: Supplementary analysis

To further understand how the characteristics of workgroups may be associated with staff well-being, we conducted a supplementary analysis of the workgroup features in respondents reporting particularly high and low levels of well-being. Well-being was calculated by averaging scores from the thriving and burnout (reversed) items. We then identified those reporting the highest (i.e., top 25%; n=53) and lowest (bottom 25%; n=53) overall well-being in the sample.

Figures 6 and *7* show the workgroup features, identification, and job characteristics of these two samples. This is clearly a restricted sample, but it nevertheless highlights differences in workgroup features. Independent samples t-tests showed that workgroup experiences of those with the highest and lowest levels of well-being differed on all measured characteristics, $t(87\text{-}01) = -10.40 - 8.30$, $p = 0.021$ - <.001. As can be seen in Figure 6, those reporting the highest levels of well-being experience their work groups as more positive, supportive, less toxic, and better led than those reporting the lowest levels of well-being. (Appendix D shows a prototypical workgroup map for those with highest and lowest well-being ratings).

Figure 6: Workgroup characteristics of staff with the highest and lowest well-being
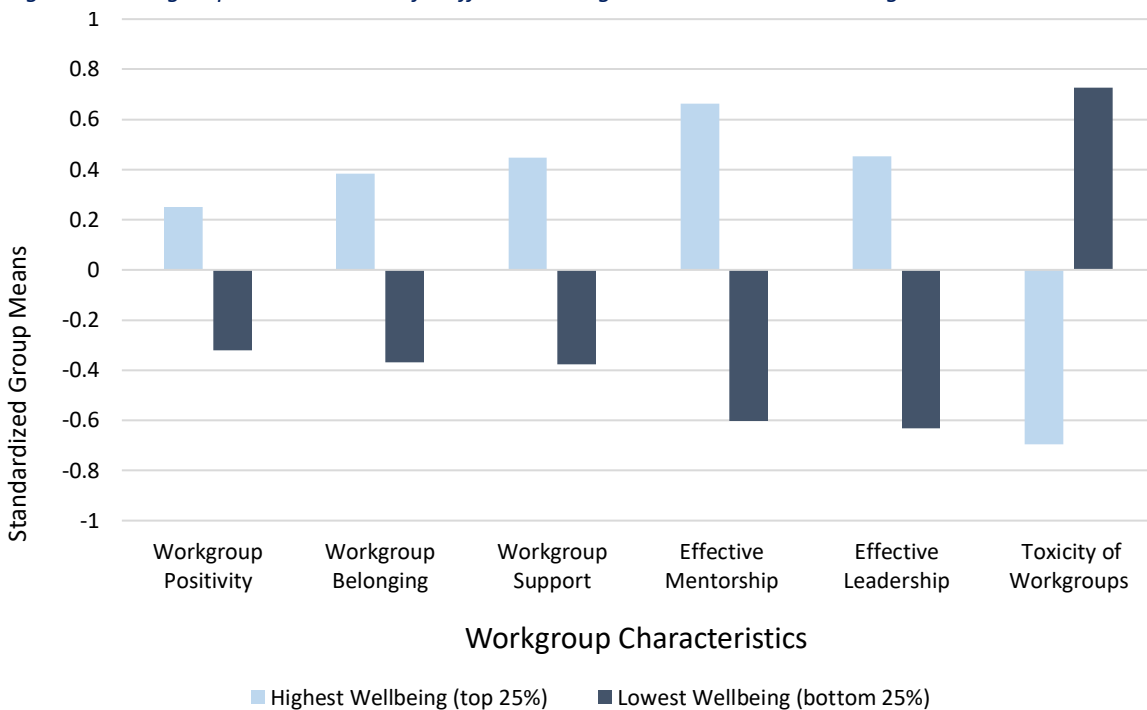
When we look at respondents' sense of identification with relevant groups and job characteristics we see a similar pattern (see Fig 7). Compared to staff with low well-being, those with high well-being reported having a more positive work experiences on average (e.g., higher satisfaction and engagement). Specifically, compared to early career academics with the lowest well-being, those with the highest well-being report stronger workplace-related identification as 1) an ECA/R, 2) with the school, 3) with the university, and 4) with the profession. In addition, those with the highest well-being also report 1) less job insecurity, 2) higher work satisfaction, 3) greater perceived career opportunities, and 4) a less toxic university culture.

Figure 7: Identification, work, and career characteristics of staff with the highest and lowest well-being
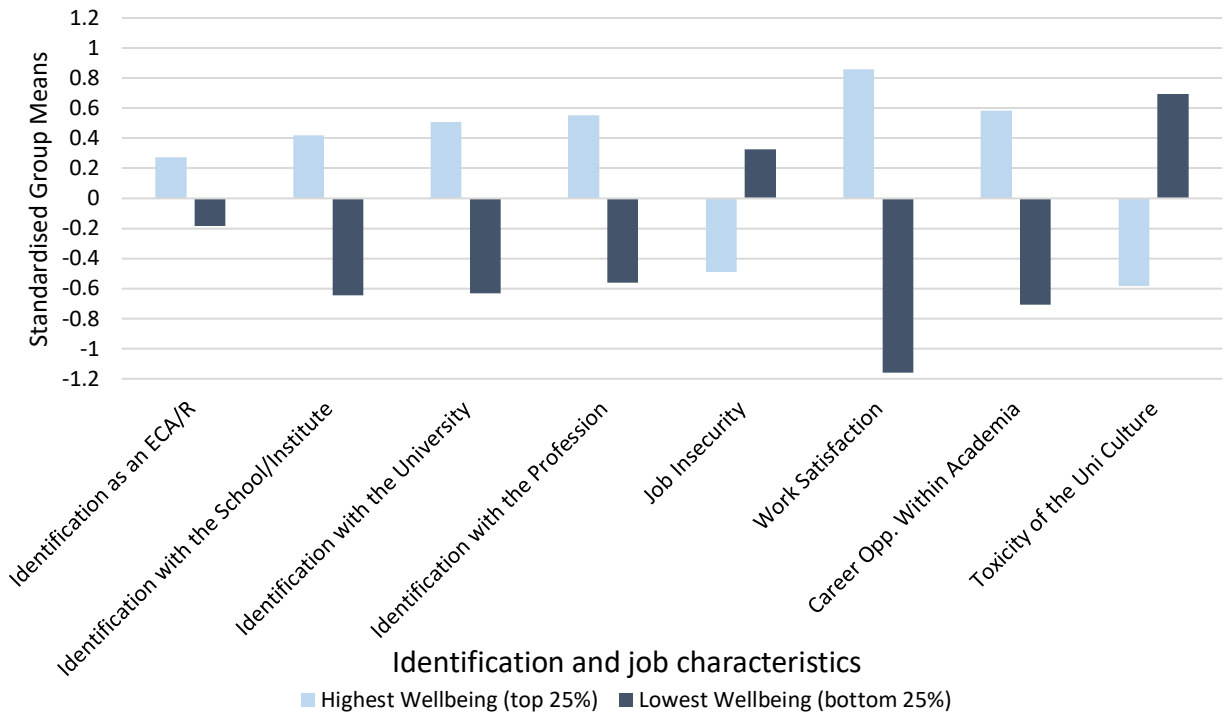
Results Summary

This quantitative phase of research provided some important insights into the contribution that the workgroups people belong to make to staff well-being and work outcomes. Building on our first phase of research we demonstrate the following:

1. Belonging to both local and central workgroups contribute to well-being, work, and career outcomes.

2. The impact of workgroups is dependent on their characteristics.
   a. Belonging to positive groups — marked by supportive environments and effective leadership — contributed to enhanced well-being, thriving, and reduced burnout. These attributes also aligned with improved work outcomes, including higher work satisfaction, a sense of job security, and increased career opportunities.
   b. Belonging to negative groups — characterised by perceived toxicity, poor or absent leadership, and a lack of support — contributed to lower well-being, increased burnout, and heightened psychological distress. These adverse workgroup conditions were associated with poor career outcomes, diminished career opportunities in academia, and feelings of job insecurity.

3. Across the board, belonging to local workgroups had a unique and significant impact on the range of well-being outcomes. Belonging to central workgroups, however, had a different impact. Their unique contribution lay in helping staff feel there were career opportunities they could pursue in and outside academia. Importantly, these effects only emerged where the local and central workgroups that people belonged to were experienced as more positive.

Implications and Recommendations

The findings from this project, comprising qualitative and quantitative studies, have important implications for ongoing support of staff; most notably, for well-being, job security, and career progression. We summarise the core issues and recommendations below, which are broadly aligned with the themes identified in our initial qualitative research (see Appendix A).

Proposed Recommendations

Core Issues	Recommendations			
	General Conclusions	**Short-Term**	**Mid-Term**	**Long-Term**
Early career inhibitors: Role value and job insecurity	The data highlight the ongoing struggle of job insecurity for early career academics, which impacted on both staff well-being and perceptions of their career opportunities.	The data show the importance of focusing on belonging to local workgroups as a way to directly support staff wellbeing. Increasing meaningful engagement in central workgroups may open up career progression opportunities.	Ensure early career academics have a voice in, and contribute to, changes in work practice. Data from the qualitative phase of research show there are more positive outcomes where workgroups enable such ownership.	Job insecurity is a clear consequence of the research funding models that lead to fixed term appointments. While this is hard to address, universities can help by enabling positive and targeted mentoring and extending contracts to allow time for staff to focus on their next positions and career steps.
Workgroups as a vehicle for support and opportunity.	Both belonging to local and central workgroups contribute to staff professional and well-being outcomes.	To build and sustain the well-being of staff, investment in local workgroups is key. Our data show that building positive, supportive, and effectively led workgroups can enhance well-being across a range of indicators. We suggest investing in programs focused on enhancing the culture and leadership of local workgroups.	Central workgroups were key in supporting career progression and giving staff a sense there were opportunities to further their careers. Working to ensure these faculty- and university-level groups are also positive, supportive, and effectively led supports this outcome.	We shine a light on the substantive impact of local workgroups. This is observed despite the increasing move towards centralizing resources, at the cost of local. Our data suggest that more could be achieved through a more balanced investment of resources that works on strengthening and enhancing local workgroup culture and leadership.
Leadership of academic supervisors and mentors	Leadership was a common theme that emerged in the success or otherwise of workgroup function.	We suggest that an initial review of leadership training and practice is necessary to ensure it better meets the needs of early career academics. This should be inclusive of staff at all levels to gain a comprehensive overview of leadership processes.	With time, this review could directly compare stronger and weaker leadership practice, as effective leadership was clearly present in some staff experiences that impacted positively on their outcomes.	Existing expertise in leadership research and practice within UQ and UoE could be harnessed to build upon the current leadership development programs in place and incorporate more of a people and culture focus. There are empirically tested programs developed by staff already in use in public and private sectors (e.g., the 5R Leadership program currently run in the House of Commons, UK). These offer a means of building positive work group identity to enhance individual staff and organisational outcomes.

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Appendix A: Summary of Qualitative Research Outcomes and Recommendations

Core themes: Summary statements

Theme 1: The early career inhibitors: A role that is precarious, unclear, and undervalued

- *Job precarity/insecurity: repeated fixed-term contracts obstruct productivity and reduce well-being.*
- *Unclear and demanding expectations: high workloads coupled with ambiguous role requirements and career trajectories hinder progression and well-being.*
- *An under-valued identity: early career academics struggle to be heard and seen, rendering it difficult to access support.*

Theme 2: The enabling capacity of groups: An opportunity for protection

- *Workgroup fit: belonging, connection, and social identification: belonging to diverse and multiple workgroups help early career academics cope with the harsh academic environment.*
- *Workgroup culture: the demanding culture of academia creates workgroups that are either collaborative, or competitive. The latter undermines well-being and work-life balance.*
- *Groups outside of work: family members and friends provide important emotional support.*

Themes 3: From management to mentorship: The role of academic supervisors and mentors

- *Management: effectively managing early career academics towards objectives: supervisors are critical in heightening +ve and buffering -ve experiences, particularly in managing work-life balance.*
- *Leadership: creating supportive groups: supervisors shape the norms and values of workgroups and determine if the culture is one of collaboration or competition.*
- *Mentorship: from career to personal development: mentors (not only supervisors) are*

Recommendations proposed from qualitative analysis.

Themes	Recommendations			
	General Conclusions	**Short-Term**	**Mid-Term**	**Long-Term**
The early career inhibitors: A role that is precarious, unclear, and undervalued	Invest in efforts to i) increase opportunities for career advance in research focused roles, ii) clarify and standardise early career academic role requirements, and iii) empower voice.	Support supervisors to outline expectations, responsibilities, and opportunities available for early career academics. Facilitate initial contracting and review conversations that cover i) role expectations and deliverables, ii) career pathway options, and iii) actions required to address professional development concerns.	Reward researcher contribution to teaching/supervision (e.g., university funded contract extensions in recognition of work undertaken outside of the funded researcher role). Work on contract structures to support appointments for the full duration of funding, rather than year-to-year contract renewals.	Address the inefficiencies caused by funding structures within academia. Develop more clearly defined academic pathways that disentangle teaching and research roles and expectations. This would help to both balance the value of these roles and reduce role ambiguity.
The enabling capacity of groups: An opportunity for protection	Invest in people and structures that build/strengthen local workgroups, and their leaders, to adequately support early career academics.	Enable opportunities for connection. Implement regular early career academics social and professional events to encourage them to connect and share their successes and struggles. This would also promote the cross-discipline collaboration that many participants felt was lacking.	Enable structures that facilitate collaborative workgroup environments. Review the operation of these structures and the extent to which they support early career academic development.	Structure and fund larger research groups. Within these funded research groups, roles could be allocated to specific responsibilities (e.g., teaching, research, grant writing, people management). These roles could reduce job ambiguity, allow staff to focus on their duties, and create efficiency by reducing the amount of context switching.
From management to mentorship: The role of academic supervisors and mentors	Address the lack of support, training and development, and accountability for those responsible for early career academics.	Support the development of effective supervisor-supervisee relationships. Develop resources that outline standards of practice, as well as frameworks to guide two-way conversations regarding relationship expectations, reflections, and actions.	Invest in training and development opportunities that address people management, leadership, and mentorship. Incorporate training programs into workload expectations otherwise, as expressed by interview participants, these opportunities can be seen as a burden.	Implement key performance indicators corresponding to supervision. These key performance indicators could include their engagement with supervision development, and leadership review.

Appendix B: Survey content summary

**Early Career Staff
SURVEY STRUCTURE**

Brief outline of the survey design b framework (ECT ~20 minutes)

1

Demographics
&
Prof Identity

Participant demographic and identification items
Professional identity items include:
- Identification with:
  - Profession (academia/discipline area)
  - ECR/ECA (stage of career)
  - University (UQ/UE)

2

Mapping
Networks of
Suport

The mapping activity will involve step-by-step video instructions of how to map out one's networks of support:
- How to add groups (# of groups - up to 6)
- How to size groups (importance)
- How to rate groups along:
  - time spent with group
  - positivity
  - belonging
  - social support
- How to connect groups (compatibility)

Groups names will then be piped into Qualtrics to capture workgroup leader and culture context:
- Mentorship
- Leadership
- Workgroup culture

3

Outcome
Measures

Final **outcome measures** include :
- Job insecurity
- Career Progression Opportunities
- Workplace culture
- Work satisfaction
- Stress and burnout
- Thriving
- Loneliness
- Psychological distress

6

Appendix C: Quantitative Survey Content Analysis Detail

A total of 160 out of 210 participants provided a description of their workgroup ratings. These descriptions were coded for common themes. Most participants' descriptions were coded as reflecting multiple themes. For example, a participant's description of a workgroup as "committed, hard-working, collaborative, and respectful," was coded as reflecting the themes: conscientious, collaborative, and receptive. We then tallied the codes to obtain a frequency count of the themes, which were then categorised according to the corresponding rating (very negative, negative, neutral, positive, very positive) of that rating. For simplicity, we combined very negative and negative rated groups into a *negative* category and combined positive and very positive rated groups into a *positive* category.

Positive workgroup characteristics

Of the 815 groups described by participants, 542 (67%) were positive. Supportive experiences were the most common theme in positive groups, accounting for 47.8 of descriptions. Collaborative (32.8%) and receptive (21.2%) were the other major themes evident in positively rated workgroups. Furthermore, some participants described their positive groups as stimulating (11.1%), having positive leadership (8.3%), aligned (5.6%) and social (5.1%); these minor themes were absent from any negative group descriptions, except for one participant who described positive leadership in a central group they negatively rated. Furthermore, conscientiousness was described in 21.4% of positively rated groups; however, conscientiousness was also seen in 27.7% of negatively rated groups. This trend held similar between local (20.4%, positive; 25.0%, negative) and central (22.4%, positive; 25.4%, negative groups). Therefore, conscientiousness was not considered a theme for positive or negative groups.

When comparing local and central groups, local groups consisted of a larger portion of positive groups (95%) than those of positive central groups (74%). The major themes in positive groups were consistent between local and central groups, supportive (48.1%, local; 47.5%, central), collaborative (38.8%, local; 38.8%, central), receptive (22.2%, local; 21.3%, central). Minor themes, stimulating (11.1%, local; 7.7%, central), positive leadership (10.6%, local; 6.6%, central), social (5.1%, local; 1.6%, central), and aligned (5.6% local; 3.3%, central), were slightly more common in positive local groups than positive central groups.

Negative workgroup characteristics

Of the workgroups described by participants, 94 (12%) were rated negative. The remaining 179 groups (22%) were rated as neutral. They were excluded from this content analysis given our focus on those workgroups likely to impact outcomes given their positive and negative nature. Experiences of feeling undervalued (27.7%), disconnected (26.6%), divided (26.6%), of toxicity (19.1%) and being excluded (20.2%) were major themes associated with negatively rated groups. Competitive (8.5%) and large groups (4.3%) were slightly more prominent in negatively rated groups than in positive groups.

When comparing local to central groups, more central groups were rated negatively (13%) than local groups (3%). Accordingly, comparing the negative aspects between local and central groups is difficult. Moreover, in negatively rated central groups, many participants describe experiences of being divided (27%), undervalued (27%), disconnected (23.8%), experiencing poor leadership (22.2%), exclusivity (15.9%), and toxicity (12.7%). Interestingly, descriptions of high workload (14.3%) were directed to negatively rated central groups with no participants describing high workload for negative local groups.

Table 5. Cumulative totals of themes ECRs used to describe their different workgroups

Percentage of theme within each type of workgroup*

	Local Workgroups				Central Workgroups			
	Positive		Negative		Positive		Negative	
Theme	Count	%*	Count	%*	Count	%*	Count	%*
Total groups	216		12		183		63	
Supportive	**104**	**48.1**	0	-	**87**	**47.5**	2	3.2
Collaborative	**83**	**38.4**	0	-	**71**	**38.8**	2	3.2
Receptive	**48**	**22.2**	0	-	**39**	**21.3**	0	-
Conscientious	44	20.4	3	25.0	41	22.4	16	25.4
Stimulating	**24**	**11.1**	0	-	14	7.7	0	-
+'ve leadership	**23**	**10.6**	0	-	12	6.6	1	1.6
Aligned	12	5.6	0	-	6	3.3	0	-
Social	11	5.1	0	-	1	0.6	0	0
Disconnected	11	5.1	3	25.0	19	10.4	**15**	**23.8**
Undervalued	1	0.5	2	16.7	8	4.4	**9**	**14.3**
Divided	2	0.9	**4**	**33.3**	6	3.3	**17**	**27.0**
Competitive	13	6.0	1	8.3	12	6.6	3	4.8
-'ve leadership	9	4.2	3	25.0	3	1.6	**14**	**12.2**
Exclusive	3	1.4	**5**	**41.7**	4	2.2	**10**	**15.9**
Toxic	0	0	**4**	**33.3**	2	1.1	**8**	**12.7**
Large	2	0.9	0	-	4	2.2	3	4.8
Workload	10	4.6	0	-	8	4.4	**9**	**14.3**

Note. Bold text represents most common them

Appendix D: Example Workgroup Maps

Map from respondent in the bottom 25% of the sample on well-being

The work culture is… 'Strange. I feel like I work 'for' someone and not as part of a team. Lack of leadership and support. I could disappear for and nobody would notice. No clear accountability. I've never had a role which is so professionally isolating.

The work culture is… 'friendly, professional, reciprocal student advisor roles.'

The work culture is… 'Driven, competitive, lack of job security.'

The work culture is… 'I have an ambiguous relationship with this group. There are some who do not like me or my association so I need to tread carefully. But there has been a new leader who is trying to improve team cohesiveness..'

The work culture is… 'Lack of consistency in leadership. Changing goalposts for continuing positions. Highly casualised workforce. Negative and toxic employees. Blame and shame culture.'

Students

Lab Group

University of Queensland

Industry Collaborators

School

In an average week, about how much time do you spend with this group?

Lab Group	5 / 7
Industry Collaborators	2 / 7
Students	3 / 7
School	6 / 7
University of Queensland	2 / 7

How much social support do you receive from this group?

Lab Group	2 / 7
Industry Collaborators	4 / 7
Students	1 / 7
School	2 / 7
University of Queensland	2 / 7

group?

Lab Group	2 / 7
Industry Collaborators	2 / 7
Students	2 / 7
School	2 / 7
University of Queensland	2 / 7

Map from respondent in the top 25% of the sample on well-being

The work culture is… 'productive, inclusive, friendly, and engaged.'

The work culture is… 'Positive work culture within the group, although some disconnect from other areas of the university who place a higher emphasis on T&R and research-focused roles.'

The work culture is… 'Collaborative, close and supportive. One of the best groups of people I've ever worked with. The income is shared to support our wages making it less competitive in such a competitive environment that is academia. The leaders are kind and supportive.'

EMCR Commitee

Teaching Group

Office Friends

Primary Research Group

The work culture is… 'Friendly and noisy. Fun office to be a part of.'

Key Collabs

The work culture is… 'Shared values and compatible practices. Have developed this group over several years. They are in various schools and disciplines.'

School

The work culture is… 'Collaborative, passionate, committed, and supportive.'

External ECR Friends

The work culture is… 'Supportive, vulnerable, caring and safe.'

How much do you feel like you belong in this group?

Group	Score
Primary Research Group	7 / 7
EMCR Commitee	6 / 7
Teaching Group	5 / 7
Office Friends	7 / 7
School	7 / 7
Key Collabs	6 / 7
External ECR Friends	7 / 7

In an average week, about how much time do you spend with this group?

Group	Score
Primary Research Group	7 / 7
EMCR Commitee	2 / 7
Teaching Group	5 / 7
Office Friends	7 / 7
School	6 / 7
Key Collabs	4 / 7
External ECR Friends	2 / 7

How much social support do you receive from this group?

Group	Score
Primary Research Group	6 / 7
EMCR Commitee	7 / 7
Teaching Group	6 / 7
Office Friends	5 / 7
School	5 / 7
Key Collabs	5 / 7
External ECR Friends	7 / 7

Appendix E: Survey Study Regression Analysis Detail

Workgroup impact on staff outcomes

A series of multiple linear regression analyses were conducted to examine the relative role of local and central workgroup characteristics on well-being and career outcomes. To conduct these analyses, individual workgroup characteristics were used to calculate aggregate scores of each participant's local and central workgroups.

Workgroup Positivity

Having positive workgroups was associated with enhanced well-being ($F(2, 143) = 20.11$, $p < .001$, $R^2 = .22$) and thriving ($F(2, 143) = 18.12$, $p < .001$, $R^2 = .20$), and reduced burnout , ($F(2, 143) = 13.63$, $p < .001$, $R^2 = .16$), psychological distress ($F(2, 143) = 7.84$, $p < .001$, $R^2 = .10$), and loneliness ($F(2, 143) = 3.46$, $p < .05$, $R^2 = .05$). Positive workgroups were also associated with better early career academic's work satisfaction ($f(2, 143) = 25.97$, $p < .001$, $r^2 = .269$), more hopeful perceptions of job insecurity ($f(2, 143) = 3.88$, $p < .05$, $r^2 = .052$), and better career progression opportunities within ($f(2, 143) = 15.31$, $p < .001$, $r^2 = .178$) and outside of academia ($f(2, 143) = 6.56$, $p < .01$, $r^2 = .085$).

Table 4.

Regression Coefficients for Predicting Staff Well-being Outcomes from Workgroup Positivity

Outcome Variable	Predictor Variable	$β$	p
Well-being	Local Workgroup Positivity	.31	<.001
	Central Workgroup Positivity	.29	<.001
Thriving	Local Workgroup Positivity	.32	<.001
	Central Workgroup Positivity	.26	<.01
Burnout	Local Workgroup Positivity	-.25	<.01
	Central Workgroup Positivity	-.27	<.01
Psychological Distress	Local Workgroup Positivity	-.27	<.01
	Central Workgroup Positivity	-.11	.183
Loneliness	Local Workgroup Positivity	-.17	.053
	Central Workgroup Positivity	-.11	.212

Table 5.

Regression Coefficients for Predicting Staff Career Outcomes from Workgroup Positivity

Outcome	Variable	$β$	p
Work Satisfaction	Local Workgroup Positivity	.34	<.001
	Central Workgroup Positivity	.32	<.001
Perceptions of Job Insecurity	Local Workgroup Positivity	-.13	.133
	Central Workgroup Positivity	-.16	.057
Career Opp. within Academia	Local Workgroup Positivity	.01	.864
	Central Workgroup Positivity	.42	<.001
Career Opp. Outside Academia	Local Workgroup Positivity	.12	.150
	Central Workgroup Positivity	.24	<.01

Workgroup Support

Supportive workgroups were associated with greater well-being (f(2, 134) = 8.41, p < .001, r^2 = .11) and thriving (f(2, 134) = 8.08, p < .001, r^2 = .11), and reduced burnout (f(2, 134) = 6.06, p < .01, r^2 = .08), psychological distress (f(2, 134) = 3.66, p < .05, r^2 = .05) and loneliness (f(2, 134) = 3.66, p < .05, r^2 = .05). Supportive workgroups were also associated with better early career academic's work satisfaction (f(2, 134) = 10.81, p < .001, r^2 = .14), more hopeful perceptions of job insecurity (f(2, 134) = 3.89, p < .05, r^2 = .06) and better career opportunities within academia (f(2, 134) = 7.16, p < .001, r^2 = .10) and outside academia (f(2, 134) = 4.67, p < .05, r^2 = .07).

Table 6.
Regression Coefficients for Predicting Staff Well-being Outcomes from Workgroup Support

Outcome Variable	Predictor Variable	β	p
Well-being	Local Workgroup Support	.27	<.01
	Central Workgroup Support	.13	.140
Thriving	Local Workgroup Support	.22	<.05
	Central Workgroup Support	.18	<.05
Burnout	Local Workgroup Support	-.27	<.01
	Central Workgroup Support	-.05	.541
Psychological Distress	Local Workgroup Support	-.23	<.05
	Central Workgroup Support	.01	.917
Loneliness	Local Workgroup Support	-.24	<.01
	Central Workgroup Support	.07	.416

Table 7.
Regression Coefficients for Predicting Staff Career Progression Outcomes from Workgroup Support

Outcome	Variable	β	p
Work Satisfaction	Local Workgroup Support	.30	<.001
	Central Workgroup Support	.15	.075
Perceptions of Job Insecurity	Local Workgroup Support	-.22	<.05
	Central Workgroup Support	-.04	.682
Career Opp. within Academia	Local Workgroup Support	.08	.366
	Central Workgroup Support	.28	<.01
Career Opp. Outside Academia	Local Workgroup Support	.12	.189
	Central Workgroup Support	.19	<.05

Workgroup Leadership

Effective workgroup leadership was associated with better staff well-being (f(2, 129) = 12.52, p < .001, r^2 = .17) and thriving (f(2, 129) = 9.99, p < .001, r^2 = .14), as well as reduced burnout (f(2, 129) = 10.14, p < .001, r^2 = .14) and psychological distress (f(2, 129) = 6.61, p < .01, r^2 = .09). Although local workgroup leadership was an important predictor of loneliness, the model as a whole was not a good fit for the data (F(2, 129) = 2.79, p = .065, R^2 = .04). Effective workgroup leadership was also associated with better work satisfaction (f(2, 129) = 12.10, p < .001, r^2 = .16) and career opportunities both within academia (f(2, 129) = 13.15, p < .001, r^2 = .17) and outside academia (f(2, 129) = 10.70, p < .001, r^2 = .14). Neither local nor central workgroup leadership were unique predictors of perceptions of job insecurity, and the model as a whole was not a good fit for the data (F(2, 129) = 1.81, p = .168, R^2 = .03).

Table 8.

Regression Coefficients for Predicting Staff Well-being Outcomes from Workgroup Leadership

Outcome Variable	Predictor Variable	β	p
Well-being	Local Workgroup Leadership	.34	<.001
	Central Workgroup Leadership	.16	.050
Thriving	Local Workgroup Leadership	.33	<.001
	Central Workgroup Leadership	.12	.174
Burnout	Local Workgroup Leadership	-.29	<.001
	Central Workgroup Leadership	-.18	<.05
Psychological Distress	Local Workgroup Leadership	-1.35	<.01
	Central Workgroup Leadership	-.69	.100
Loneliness	Local Workgroup Leadership	-.19	<.05
	Central Workgroup Leadership	-.06	.503

Table 9.

Regression Coefficients for Predicting Staff Career Progression Outcomes from Workgroup Leadership

Outcome	Variable	β	p
Work Satisfaction	Local Workgroup Leadership	.33	<.001
	Central Workgroup Leadership	.18	<.05
Perceptions of Job Insecurity	Local Workgroup Leadership	-.15	.090
	Central Workgroup Leadership	-.05	.614
Career Opp. within Academia	Local Workgroup Leadership	.20	<.05
	Central Workgroup Leadership	.33	<.001
Career Opp. Outside Academia	Local Workgroup Leadership	.15	.085
	Central Workgroup Leadership	.33	<.001

Workgroup Toxicity

Workgroup toxicity was associated with reduced well-being (f(2, 136) = 16.52, p < .001, r^2 = .20) and thriving (f(2, 136) = 11.65, p < .001, r^2 = .15), and greater burnout (f(2, 136) = 15.39, p < .001, r^2 = .19), psychological distress (f(2, 136) = 6.76, p = .002, r^2 = .09) and loneliness (f(2, 136) = 3.97, p = .021, r^2 = .06). Workgroup toxicity was also associated with poorer work satisfaction (f(2, 136) = 9.39, p < .001, r^2 = .12), perceptions of job insecurity (f(2, 136) = 7.02, p < .01, r^2 = .10), career opportunities within academia (f(2, 136) = 10.60, p < .001, r^2 = .14), career opportunities outside academia (f(2, 136) = 2.97, p = .055, r^2 = .04).

Table 10.

Regression Coefficients for Predicting Staff Well-being Outcomes from Workgroup Toxicity

Outcome Variable	Predictor Variable	β	p
Well-being	Local Workgroup Toxicity	-.32	<.001
	Central Workgroup Toxicity	-.21	<.05
Thriving	Local Workgroup Toxicity	-.33	<.001
	Central Workgroup Toxicity	-.12	.181
Burnout	Local Workgroup Toxicity	.25	<.01
	Central Workgroup Toxicity	.27	<.01
Psychological Distress	Local Workgroup Toxicity	.22	<.05
	Central Workgroup Toxicity	.14	.129
Loneliness	Local Workgroup Toxicity	.19	<.05
	Central Workgroup Toxicity	.09	.346

Table 11.

Regression Coefficients for Predicting Staff Career Outcomes from Workgroup Toxicity

Outcome	Variable	β	p
Work Satisfaction	Local Workgroup Toxicity	-.25	<.01
	Central Workgroup Toxicity	-.17	.051
Perceptions of Job Insecurity	Local Workgroup Toxicity	.27	<.01
	Central Workgroup Toxicity	.09	.339
Career Opp. within Academia	Local Workgroup Toxicity	-.08	.355
	Central Workgroup Toxicity	-.33	<.001
Career Opp. Outside Academia	Local Workgroup Toxicity	-.01	.95
	Central Workgroup Toxicity	-.20	<.05

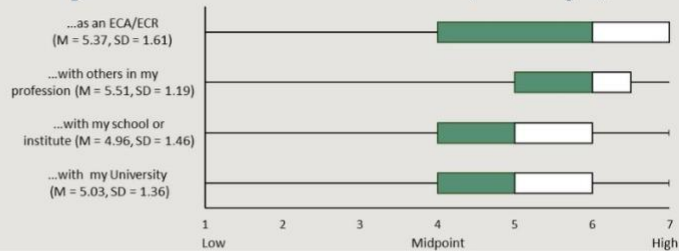## Appendix F: Report Dissemination Flyer

ECA's are reporting moderately high levels of thriving, moderate levels of burnout, and very high levels of job insecurity.

Job satisfaction is moderately high on average, despite staff feeling that their career progression opportunities are limited.
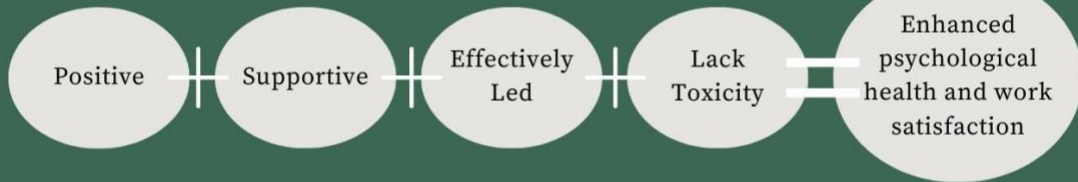
ECA Well-being and Career Characteristics

Thriving (M = 4.73, SD = 1.10)
Burnout (M = 4.10, SD = 1.15)
Job Insecurity (M = 5.49, SD = 1.71)
Job Satisfaction (M = 4.67, SD = 1.48)
Career Opp. In Academia (M = 3.47, SD = 1.5)

1 Low   2   3   4 Midpoint   5   6   7 High
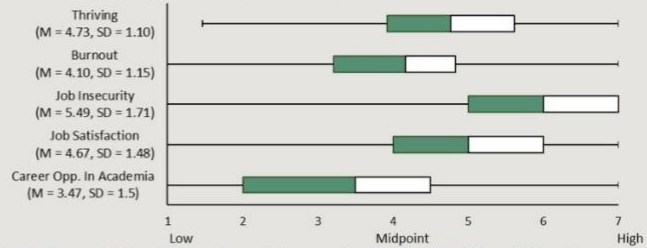
Workplace Identification Characteristics (I identify…)

…as an ECA/ECR (M = 5.37, SD = 1.61)
…with others in my profession (M = 5.51, SD = 1.19)
…with my school or institute (M = 4.96, SD = 1.46)
…with my University (M = 5.03, SD = 1.36)

1 Low   2   3   4 Midpoint   5   6   7 High

Local workgroups that are…

Positive + Supportive + Effectively Led + Lack Toxicity = Enhanced psychological health and work satisfaction
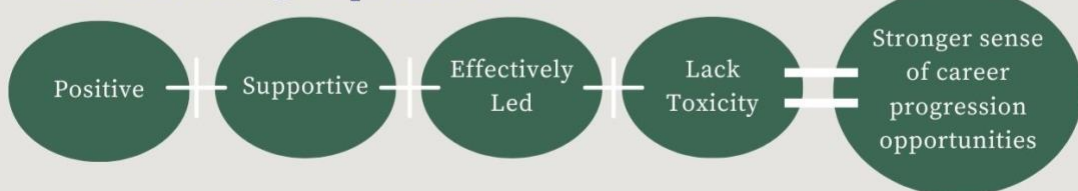
Local workgroups are important for ECA well-being, thriving, burnout, psychological distress, loneliness, and work satisfaction. Investing in building, and **strengthening, local networks** helps to **enhance ECA well-being.**

Central workgroups that are…

Positive + Supportive + Effectively Led + Lack Toxicity = Stronger sense of career progression opportunities

Central workgroups are critical for the career progression opportunities available both within and outside academia. **Investing in** building these four characteristics of central workgroups can help ECA's feel they have **opportunities for career progression**