Creating Community Change:
AAEE Members' Voices within a Shifting Landscape

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BACKGROUND

The Australasian Association for Engineering Education (AAEE) is operating in a changing socio-political University landscape, as the exigencies of limited funding and shifting priorities cause institutions to make hard choices about staffing, resources, professional development, and programmatic direction. In their recent paper, Reidsema *et al* (2013) identified a number of challenges facing change in engineering education, including the focus on research constraining the development of innovative learning and teaching in engineering, and course content not responding to industry needs. Kavanagh et al (2012) also identified a number of issues related to job satisfaction among engineering educators in Australian universities influenced by this changing university landscape. Similarly, the Australian Council of Deans (ACED) and Engineers Australia (EA) are also adapting to this shifting landscape as they re-evaluate their current activities and commitments around engineering education. In response to this changing socio-political landscape, AAEE is attempting to better understand member voices and perspectives in an effort to help define a path forward that is both relevant and effective. To this end, two members of the AAEE Executive Committee are engaging in a process to gather information to help inform the future activities of the organisation.

PURPOSE

The purpose of this research project was to better understand the stated views of AAEE members on its current operation and future direction. In particular, the authors wanted to gather members' viewpoints on organisational priorities, use of existing resources, and potential next steps. Our goal was to produce practical information that will be of use to AAEE members, to the Executive Committee, and other stakeholders in the Australasian engineering education space.

DESIGN/METHOD

The researchers designed a survey for members asking questions about the perceived mission of AAEE as an organisation, member preferences about association activities, and the association's overall strategic direction. This survey included multiple choice as well as open-ended questions for members to include their specific ideas. The findings from this survey were analysed for general trends and surprising results.

RESULTS

Interesting results were found from the survey. These included the tensions around engineering teaching and education research in terms of member support and professional development.
There was also a perceived need for the validation of ongoing professional development activities through EA recognition and through ties to some form of formal qualification. The major result for the AAEE was the complicated relationship participants have with the organisation's leadership and its direction. The findings revealed that these participants want AAEE to support their professional engagement with the engineering education discipline. Are somewhat satisfied with the direction the organisation is taking, yet do not feel like they are heard or know who they should contact with ideas or concerns.

CONCLUSIONS

This survey highlights important views members have that need to be incorporated into the future direction of AAEE

KEYWORDS

Culture change, Needs analysis, strategic planning

Introduction

The Australasian Association for Engineering Education (AAEE) is operating in a changing socio-political University landscape, as the exigencies of limited funding and shifting priorities cause institutions to make hard choices about staffing, resources, professional development, and programmatic direction (Coates and Goedegebuure, 2010). In the face of this tension, academic staff are increasingly dissatisfied with conditions in the workplace. The Changing Academic Profession (CAP) survey conducted in 2007 included nearly 50% of Australian universities as well as academics from 18 countries. The CAP survey results also described attitudes in terms of academic staff's preferences about their teaching and research duties. Academics at Australian universities reported a high preference for research only or teaching and research, with a "sharp drop" in 2007 where only 7% reported a clear preference for teaching. It is interesting to note that Australian academics at universities outside of the Go8, ATN, and IRUA designations reported a greater preference for teaching (Coates et al., 2009).

In their recent paper, Reidsema *et al* (2013) identified a number of challenges facing change in engineering education, including the focus on research constraining the development of innovative learning and teaching in engineering, and course content not responding to industry needs. Kavanagh et al (2012) also identified a number of issues related to job satisfaction among engineering educators in Australian universities influenced by this changing university landscape. Similarly, the Australian Council of Deans (ACED) and Engineers Australia (EA) are also adapting to this shifting landscape as they re-evaluate their current activities and commitments around engineering education.

In response to this changing socio-political landscape, AAEE is attempting to better understand member voices and perspectives in an effort to help define a path forward that is both relevant and effective. To this end, two members of the AAEE Executive Committee are engaging in a process to gather information to help inform the future activities of the organisation.

The purpose of this research project was to better understand the stated views of AAEE members on its current operation and future directions. In particular, the authors wanted to gather members' viewpoints on organisational priorities, the use of existing resources, and potential next steps. The goals of this project are centred on providing the AAEE Executive Committee with information that will drive the further development of AAEE as an organisation and a community. Our goal is also to open up a conversation with AAEE members about what is important for the organisation to focus on and try to achieve into the coming years.

The project is driven by the following research question:

- What do AAEE members report as their stated preferences for the current activities and for the future development of AAEE services benefitting individual members, their institutions, and the international AAEE culture as a whole?

Our aim is to produce practical information that will be of use to AAEE members, to the Executive Committee, and other stakeholders in the Australasian engineering education space.

Method

The researchers designed a survey for members asking questions about the perceived mission of AAEE as an organisation, member preferences about association activities, and the association's overall strategic direction. The online survey included both multiple choice and open-ended questions to provide members an opportunity to include their specific ideas or feedback. The survey was distributed to the AAEE executive committee for comments and

suggestions. Ethical approval was obtained through [University's] Human Research Ethics Committee. The survey was administered through Survey Monkey and then distributed via email to all AAEE members.

The survey was divided into five sections:

1. AAEE member experience
2. Learning and teaching professional development activities
3. Increasing the legitimacy of engineering education research
4. Engaging stakeholders within engineering education
5. Community building within AAEE

In total, 55 AAEE members gave their consent and responded to the survey. From here onward, these members will be referred to as the participants in the survey. Participants were free to skip any questions they felt they did not want to or could not answer. Hence in the Results section, the actual number of responses to each question will be presented. Where the questions involved participants to rank a particular statement, a four-point scale was used (strongly disagree, slightly disagree, slightly agree, strongly agree). This was done deliberately so as to either elicit a response one way or the other, as participants could choose to skip the question if it was not relevant. Participants were also able to provide an open response after the scale questions, to either further explain their response or provide a different response.

The following Results section presents the highlights of the findings from this survey. The Implications and Future Directions section will unpack these findings with an eye toward understanding member concerns and preferences for future AAEE development.

Results

1. AAEE member experience

The first set of questions asked participants about interacting with AAEE as an organisation. From Table 1, most of the participants responded that they were familiar with AAEE's goals and activities.

Table 1: Interacting with the organisation (*n* = 52)

	Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
I am familiar with AAEE's goals as an organisation.	2	4	34	12
I am familiar with AAEE's activities.	1	5	22	24
My voice is heard within AAEE.	6	15	26	5
If I want to offer a suggestion to AAEE, I know who to talk to.	6	14	20	12
I am happy with AAEE's activities.	1	8	30	13

However it is interesting to note that 40% of participants felt that their voice is not heard within AAEE and that they do not know who to talk to. One participant responded in the open response "*Not really - sometimes don't agree with direction / decisions but find that the big picture is mostly OK.*"

2. Learning and teaching professional development activities

The next set of questions investigated participants' perspectives of learning and teaching professional development activities currently run by AAEE. The first question focused specifically on the major activity AAEE undertakes: the annual conference. Specifically, we were interested in participants' views on the annual conference as a professional development opportunity. As can be seen in Table 2, most participants either slightly or strongly agreed that the conference needs to continue incorporating professional development activities.

Table 2: The annual conference as a development opportunity (*n* = 45)

	Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
The conference needs to better recognise "scholarship of teaching" papers	2	9	21	13
The conference needs to continue incorporating Professional Development activities (e.g. Master Classes, workshops)	0	4	16	25
The conference needs to focus on developing high quality education research	1	8	24	12

The interesting result is that most participants agreed that the conference needs to better recognise scholarship of teaching papers while at the same time needs to focus on developing high quality education research. This issue has been apparent from past conferences and continues to be a major issue for the association. As two participants noted:

> I don't want to see the conference become exclusive and only focus on high quality education research to the detriment of its role in supporting "new converts" who've just discovered teaching matters, so I'd prefer it continued to do both.

> The conference needs to be a balance between nurturing scholarship and building competence in new practitioners.

Another participant in the open response section offered a different perspective:

> We need to be addressing the needs of practitioners who are facing the classroom. They may not have yet progressed to the 'scholarship' of teaching and the 'how to teach "XYZ" is often a way to 'hook' new people.

Clearly there are differing perspectives within the membership of what the conference needs to provide.

The next question concerned the top priority for professional development sessions. While the responses were spread across the five options (Table 3) what was interesting is that a number of participants in the open-responses pointed out that the listed priorities are all important, and that for them, the priorities change both throughout the year, as well as year to year as they develop their careers.

Table 3: Top priority for teaching and learning professional development (*n* = 48)

Context-specific teaching techniques	14
Curriculum design/development	11
Accreditation preparation	7

Career development skills	4
Technology-enabled teaching	12

Over 50% of the participants chose either the first or last option, both of which related to teaching skill development. Participants were also asked if their institution would fund professional development activities run by AAEE. Most participants reported that either their institution had already supported engineering education professional development activities, or that they may if their was direct benefit to teaching engineering (see Table 4). One participant noted that "*We do a lot of in-house stuff already so would need to be something brilliant outside our current practice to interest us.*"

Table 4: Would my school/faculty/institution fund PD events run by AAEE (*n* = 48)

Yes, my school/faculty/institution has recently supported similar activities	11
Maybe, if there was immediate benefit for my current teaching or engineering education research	6
Maybe, if there was direct benefit for the school/faculty/institution	20
Unlikely, similar requests for funding have been rejected recently	5
Not applicable	6

Finally, participants were asked if participation in PD run by AAEE would help their careers. As Table 5 shows, for some participants attending AAEE activities is recognised by their institution. What is interesting though is that some participants believe that participation would be recognised by their institutions if it either contributed to a formal qualification or, in particular, if it was recognised by EA as continuing professional development.

Table 5: Would participation in PD activities run by AAEE help my career (*n* = 45)

Yes, ongoing PD activities are recognised in my institution's promotion structure	11
Maybe, if it contributed to a formal qualification	7
Maybe, if it was recognised by Engineers Australia as continuing professional development	11
Unlikely	13
Not applicable	3

3. Increasing the legitimacy of engineering education research

This set of 3 questions asked participants about engineering education research, if it is valued and how to raise its legitimacy. Table 6 highlights the issues researchers face in doing engineering education research within the AAEE community. Approximately 40% of participants responded that both their institution and their colleagues do not value engineering education research.

Table 6: Engineering education research and my institution (*n* = 47)

	Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
My engineering education research is valued for promotion at my institution	6	14	21	6
My engineering education research is valued by my colleagues	7	12	23	4

Participants were then asked what AAEE should do to raise the legitimacy of engineering education research, as reported in Table 7. The major responses were to work directly with deans and institutions as well as to increase the connections between research and teaching practice, emphasising the benefits of such research. In particular, this should be done to support the findings from Table 3 of the types of professional development members need.

Table 7: To raise the legitimacy of engineering education research AAEE should (*n* = 44)

Provide more professional development opportunities/activities to members	5
Work with deans and institutions in Australasia	16
Lobby funding bodies and government agencies	8
Increase connections between research and teaching practice	15

Table reveals the self-perceptions of these participants in terms of their relative expertise in engineering education research. About 70% of participants reported that they were either accomplished, an expert or a leader in engineering education research.

Table 8: As an engineering education researcher I consider myself (*n* = 48)

A leader	5
An expert	8
Accomplished	21
Beginner	10
N/A	4

4. Engaging stakeholders within engineering education

Of all the questions asked, the questions around the role AAEE plays as an advocate to stakeholders was the most mixed. As

Table 7 shows, participants had mixed thoughts about AAEE being an advocate for their needs in engineering education, with an almost even split reporting agreement and disagreement. When asked for an area for increased advocacy, Table 8 indicates that these participants prefer AAEE to focus on increasing the legitimacy of engineering education research.

Table 7: AAEE and advocacy (*n* = 48)

	Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
I see AAEE as being a primary advocate for my needs in engineering education	7	16	14	11
I have specific ideas for how AAEE can be an advocate for me	5	15	23	2

Table 8: Primarily, I want AAEE to advocate for (*n* = 42)

Increased professional development	7
Increased legitimacy of engineering education research	23
Increased cohesion of engineering programs across the region	12

However some of the participant's open-responses provided a different picture. As one participant noted:

> "*AAEE needs to be seen as a mainstream forum for all engineering educators rather than as a specialist society for engineering education researchers alone.*"

However another participant put forward a different view:

> "*AAEE seems to be focused on increasing the respect of teaching centric academics in the face of ERA rather than disseminating teaching skills founded on education research discoveries.*"One participant went further, stating "*AAEE needs to concentrate on being a scholarly society rather than 'politicised' advocacy*".

This points to a mixed view the role AAEE should be playing as an advocate for its members.

5. Community building within AAEE

The final set of questions asked participants their thoughts on activities AAEE should do for community development. As can be seen in Table 9, most participants agreed that AAEE should do more throughout the year, rather than just focusing on the conference. They also felt that AAEE should support better communication between members, something which has been limited to date.

Table 9: AAEE community activities (*n* = 47)

	Strongly Disagree	Slightly Disagree	Slightly Agree	Strongly Agree
AAEE should do more activities throughout the year to support me	2	14	23	7
AAEE should support better communication between members	1	5	27	12
As a member, I feel like I can influence the direction of the organisation	4	16	20	3

The concerning response however was that about half the participants felt that as a member they could not influence the direction of the organisation.

Implications and Future Directions

From the beginning, the two researchers understood the limited nature of gathering information from members via an online survey. Historically, these surveys have had small levels of engagement. Yet the researchers felt that this approach could serve as a preliminary step in better understanding the preferences and goals of the membership for the future directions of AAEE as an organisation.

In terms of findings, three central themes stand out at this point. First, the **tensions around engineering teaching and education research** in terms of member support and professional development. Participant in this survey reported a preference for an inclusive environment at the conference, a desire for stronger professional development for engineering teaching skills, and a clear preference for the organisation to raise the profile and value of engineering education research within institutional culture and with sector leadership.

The second theme in this data is around justification for professional development activities, with a perceived need for **validation of ongoing professional development activities** through EA recognition and through ties to some form of formal qualification. There is some enthusiasm or interest in AAEE providing professional development to individual institutions, but there are also concerns about funding and recognition for promotion purposes.

Another theme that stands out is the participants' **complicated relationship with the organisation's leadership and its direction**. The findings revealed that these participants want AAEE to support their professional engagement with the engineering education discipline. Are somewhat satisfied with the direction the organisation is taking, yet do not feel like they are heard or know who they should contact with ideas or concerns.

The next step of this research project will be a series of small focus groups with members to explore these themes further and to generate possible avenues for activities which will bring the organisation into greater alignment with the many diverse needs of the member community and the wider groups of stakeholders this membership serves.

References

Coates, H., Dobson, I., Edwards, D., Friedman, T., Goedegebuure, L., and Meek, L. (2009). *The Attractiveness of the Australian Academic Profession: A Comparative Analysis*. Research Briefing, LH Martin Institute.

Coates, H. and Goedegebuure, L. (2010). *The Real Academic Revolution: Why We Need to Reconceptualise Australia's Future Academic Workforce, and Eight Possible Strategies for How to Go About This.* Research Briefing, LH Martin Institute.

Kavanagh, L., O'Moore, L. & Jolly, L. (2012) Mad as Hell and Not Taking It Any More?: Job satisfaction amongst engineering educators in Australian universities. *Proceedings of the 2012 Australasian Association for Engineering Education Annual Conference*, Melbourne Australia.

Reidsema, C., Hadgraft, R. Cameron, I. & King, R. (2013) Change strategies for educational transformation. *Australasian Journal of Engineering Education*, 19(2) p 101-108.