Navigating Pathways for Academic Staff Development: Implications for Institutions and Academic Ranks

Wageeh Boles and Andrea Goncher
Queensland University of Technology
w.boles@qut.edu.au, andrea.goncher@qut.edu.au

BACKGROUND

As engineering schools adopt outcomes-focused learning approaches in response to government expectations and industry requirements of graduates capable of learning and applying knowledge in different contexts, university academics must be capable of developing and delivering programs that meet these requirements. Those academics are increasingly facing challenges in progressing their research and also acquiring different skill sets to meet the learning and teaching requirements.

PURPOSE

The goal of this study was to identify the types of development and support structures in place for academic staff, especially early career ones, and examine how the type of institution and the rank or role of the staff member affects these structures.

DESIGN/METHOD

We conducted semi-structured interviews with 21 individuals in a range of positions pertaining to teaching and learning in engineering education. Open coding was used to identify main themes from the guiding questions raised in the interviews and refined to address themes relevant to the development of institutional staff. The interview data was then analysed based on the type of institution and the rank/ role of the participant.

RESULTS

While development programs that focus on improving teaching and learning are available, the approach on using these types of programs differed based on staff perspective. Fewer academics, regardless of rank/role, had knowledge of support structures related to other areas of scholarship, e.g. disciplinary research, educational research, learning the institutional culture. The type of institution also impacted how they weighted and encouraged multiple forms of scholarship. We found that academic staff holding higher ranking positions, e.g. dean or associate dean, were not only concerned with the success of their respective programs, but also in how to promote other academic staff participation throughout the process.

CONCLUSIONS

The findings from this study extend the premise that developing effective academic staff ultimately leads to more effective institutions and successful graduates and accomplishing this requires staff buy-in at multiple stages of instructional and program development. Staff and administration developing approaches for educational innovation together (Besterfield-Sacre et al., 2014) and getting buy-in from all academic staff to invest in engineering education development will ultimately lead to more successful engineering graduates.

KEYWORDS

Engineering academic staff development, early-career academics, institutional factors

Introduction

The international trend in undergraduate engineering program accreditation towards the demonstration of attainment of graduate attributes poses new challenges in addressing staff development needs. The school levels of universities are the most effective loci of changes in approaches to learning and teaching practices in higher education (Knight & Trowler, 2000). Heads of schools are expected to lead the development and delivery of the teaching, research and other academic activities. Guiding and mentoring individuals and groups of academics is one critical aspect of the head of school's role. Yet they do not always have the resources or support to help them mentor staff, especially the early career ones.

Staff development programs and initiatives are proving to be critically important for enabling staff to build strong careers. However, there is need to identify the most effective ways of delivering such programs, considering the impacts of variations such as the institution type, the role of staff (including leadership and management positions), and the rank of staff and the stage of their career (early, mid or established).

Some investigations and studies reported in the literature have attempted to focus on certain aspects of staff development programs. For example, the Higher Education Academy (HEA) in the United Kingdom sponsored a review of the impact of teaching development programs in higher education and the outcomes of this review were published later that year by Parsons, Hill, Holland and Willis (2012). This was prompted by the adoption of a revised framework for professional standards by the HEA. The review coincided with an intensified focus on enhancing teaching practices to improve learning outcomes. Parsons et al. (2012) also provide another example where they attempted to examine the effects of the length of training of university teachers on approaches to teaching and self-efficacy beliefs. They showed that training does enhance a shift from teacher-centred to learner-centred approaches to teaching. However, they indicated that such a shift occurs slowly and that awareness of one's own approach to teaching is essential for improving teaching practices.

Effective use of staff-development practice is also conditional to staff implementation. Several factors influencing an academic's position on seeking resources and adoption of research-based practices available are related to the sociological factors, such as the specific realities of the organization or institution (Spalter-Roth et al., 2007). Understanding the context, situational dynamics, and other factors that contribute to success aid in providing a more effective model to support early-career academics.

In this paper, we present the analysis of interview data conducted with engineering education leaders, and staff at different roles and ranks, at a number of different types of institutions. An important aspect of these interviews focussed on the development and support for staff, especially early-career ones. The paper also provides recommendations based on our findings situated within faculty/ staff development literature for structuring support systems at multiple levels of academic rank.

Approach

The aim of this study was to identify the types of development and support structures in place for staff, especially early career, and examine how these structures differed depending on the type of institution and the rank or role of the staff. It also aimed to learn about the effectiveness of such development programs.

Overall Study Design

The overall study design was a qualitative, collective case study, consisting mainly of in-depth interviews with academics in varying contexts. Individuals involved with engineering education research and/or practice were selected as candidates for this study to highlight

and discuss teaching-related developments and coaching for academic cultural change. The key research questions guiding our approach are:

- What are the implications of institution type for staff support structures?
- What impact does the staff rank or role have on staff development?

Participants

The overarching characteristic of participants was their involvement in engineering education at one of four universities in the United States selected for this study. Interviews were conducted with 21 participants who held ranks ranging from Assistant Professor, Associate Professor, Professor, Chair, Associate Dean, Senior Associate Dean, Dean, to Director. These titles were based on the US system and the Assistant Professor is equivalent to Lecturer/ Senior Lecturer in the Australian system. Ten males and 11 females participated in this study, with a higher distribution of females in the tenure track staff or director roles and higher male distribution in the Dean roles. Figure 1 illustrates the number of participants representing each institution ("Institution A, B, C, or D") involved and the participant's highest academic ranking at the time of the interview and number of males and females for that position. Several staff had multiple titles, holding both tenure track positions as well as leadership or director roles, and we used the high ranking title when classifying participants by role.
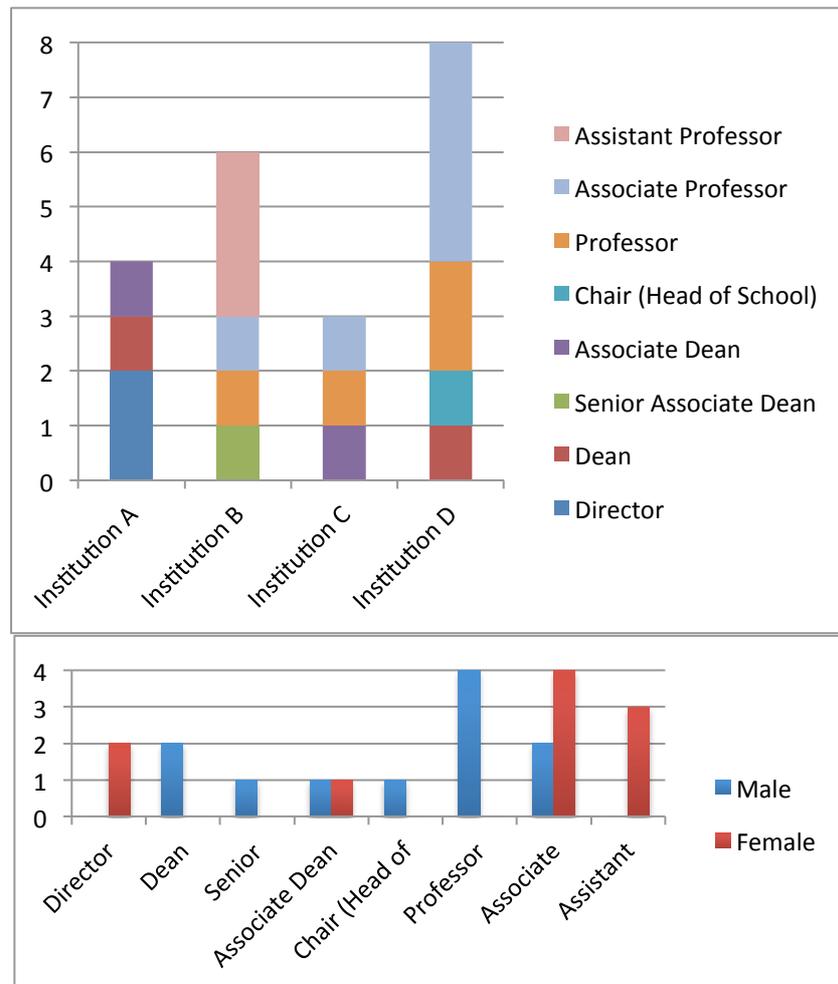
Figure 1. Staff roles and ranking by institution and gender

Participants were selected based on their activity, engagement, research, etc. in engineering education. This sample included engineering education leaders, researchers, curriculum developers, staff engaged in accreditation and assessment and directors for research

centres involved in engineering education. Other participants, who did not hold positions in engineering faculties, were engaged in teaching and learning activities and/or part of dedicated teaching and learning centres that assisted or interacted with engineering staff.

Data Collection: Semi-structured interviews

The interviews with selected participants were designed to open discussion and allow participants to focus on the development of support for academics. A semi-structured format was chosen to allow the exploration of themes that emerged during the interview process, but to also ensure that important elements related to the research questions were covered.

Interview protocol and guiding questions focused on a number of areas for discussion. These included 1) developing assessments that can provide evidence of student learning and 2) development and support for staff, especially early career. Participant responses, regarding development and support for staff, were the main data sources for this study. However, we included elements from the responses to both questions in the analysis due to overlap in participants' discussion of each area.

Analysis of Staff Interviews

Interviews were recorded, transcribed and analysed using NVivo qualitative analysis software. Researchers performed data analysis in a series of steps with increasing depth to understand the data and address this study's research questions. First-cycle coding was used to identify main themes from the guiding questions raised in the interviews and second-cycle coding was applied to refine the identified categories and themes from first-cycle coding. The data was then categorized based on the type of institution and the rank/ role of the participant.

Coding

Open coding (Strauss & Corbin 1998), used for the first iteration of coding, identified main themes across the interview data of all participants. The final codebook developed from this set of interviews consisted of five codes and 23 sub-codes. These were based on reoccurring themes that emerged from the data and themes that directly related to the guiding questions and interview protocol. Our process engaged multiple, asynchronous coders to extensively explore the reoccurring themes, patterns, and concerns found in the set of interviews with the 21 participants.

Second-iteration coding was applied to specifically address the research questions related to staff support for various roles and institutional types. We refined the categories and coding structure based on their relevance to addressing the research questions, e.g. early-career experiences, and included or further defined codes based on existing studies that focus on staff support and development. Specifically, the code "staff support" was defined to include instances related to teaching, disciplinary research, educational research, collaborations, assistance for proposal writing and funding based on Felder, Brent and Prince's (2011) identified possible areas for faculty (staff) development. The funding code was defined separately and expanded to include "assistance for proposal writing and funding" based on one measure of professional development used in the Study of New Scholars (2004). Table 1 provides the code name, definition and representative example from the data set.

Institution Type

The four United States institutions housing the 21 participants were classified by the Carnegie classification level and control (Carnegie Foundation, 2011). Table 2 identifies the level for each classification for the participating universities. While participants also provided descriptions or classifications of their own institution, e.g. "teaching focused", we applied the

Carnegie classification as a consistent categorization and used the participants' classification or explanations to contextualize their responses.

Table 1. Coding Scheme

Code	Definition	*Example instance*
Initiatives	Programs, centres, groups, etc. for professional support for staff in various areas of scholarship.	*"we really sort of want to take some parts from that and do that for just the engineering faculty. You can go, and they can help you with instructional development for your class."*
Staff *(faculty)* support	Support for development: teaching, disciplinary research, educational research, collaborations, assistance for proposal writing and funding.	*"But many faculty also described the need not just for individual but for workplace transformation. And we could conceive of faculty development targeted toward enhancing work groups"*
Career Stage	Career stage, e.g. mid, late, perspective. Possible scenarios include reflection or actions based on career stage.	*"That really hit me when I became associate dean the last couple of years, more than I realized it before. It's like really, it's another process."*
Early Career	Perspectives, experiences, concerns, actions, etc. of early career staff in navigating the institutions and their careers.	*"I'm an assistant professor and really there's a constant pull on time I spend in research and time I spend in the classroom. So really trying to elevate the education portion in a research institute I think is really important."*
Mentoring	Types of programs, specific instances, or plans, etc. in place for mentoring early career or junior staff.	*"And then depending on the initiative of the new faculty they either get together very formally and frequently or they get together very seldom."*
Collaboration	Collaborations involving research, teaching, or advising and can be within or across disciplines.	*"And actually [staff] is on [student's] dissertation committee, and has been actually wonderful, because here's someone who is in education and has some great insights in how to study this in engineering."*
Funding	Funding support for staff initiatives, programs, or research.	*"I've tried to find external support, external funding so we've been successful at that."*

Table 2. Institutional Characteristics

	Category	
Institution ID	*Control*	*Carnegie Classification*
Institution A	Private not-for-profit	RU/H: Research Universities (high research activity)
Institution B	Public	RU/VH: Research Universities (very high research activity)
Institution C	Private not-for-profit	RU/VH: Research Universities (very high research activity)
Institution D	Private not-for-profit	Bac/A&S: Baccalaureate Colleges—Arts and Sciences

Institutions included represent both public and private universities, varying levels of research activity and degree granting. Institution A is a private research university, primarily granting baccalaureate degrees or above. Institutions B and C in this study are classified as very high research activity and are members of the Association of American Universities, an international organization of leading research universities, granting baccalaureate degrees or above. Institution D is top-ranked liberal arts college (*U.S. News & World Report, 2013*) and primarily an undergraduate institution, granting baccalaureate and masters degrees.

The other institutional characteristics for each of the four universities are reported for the institution as a whole and we included them to give an overarching sense of the organizational culture associated with these types of institutional classifications. We sampled staff, holding positions within the faculties (schools) of engineering and/or education, engaging in engineering education activity within these institutions. While we did not interview or survey all staff from these schools in engineering and/or education to generalize our findings across the school(s), the interview was designed to identify characteristics (and hopefully successful characteristics) of structures in place to assist staff in professional development.

Staff (Faculty) Role

Academic Rank

We categorized participants by their academic level or ranking, e.g. Assistant Professor or Associate Dean. This classification allowed the researchers to categorize the staff support structures at various levels of a staff member's career or type of position. The types of positions were grouped as 1) Leader/ manager, e.g. Dean, having primarily leadership or managerial responsibilities associated with the identified positions, 2) Tenure track staff/ faculty, e.g. Professor, responsible for several areas of scholarship and 3) Director, e.g. Centre, responsible for guiding and supervising a specific project, program or centre. Figure 2 lists the groups and types of positions categorized under each group.

Role within the Institution

In some cases, participants holding tenure track and administrative positions also held directorships for centres or programs within their college or school. We tagged these types of roles for each participant, if applicable, and analysed the impact of their position regarding staff support-related issues. Other directorship positions were specific to a project or program and were categorized for that position.

Leader/ Manager	Tenure Track Staff/ Faculty	Director
•Dean •Senior Associate Dean •Associate Dean	•Professor •Associate Professor •Assistant Professor	•Centre •Project •Program
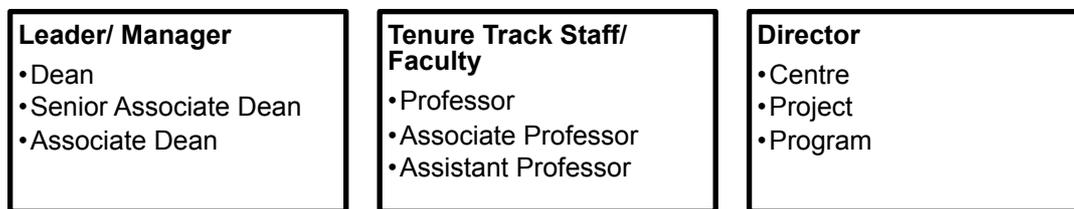
Figure 2. Classification of Participant Roles

Findings

Effect of Institution Type

The institutions categorized as Bac/A&S and RU/H had a smaller and more defined structure for supporting staff and was supportive at the administrative level. We found that the mentoring programs specifically were more defined for incoming staff (early career) and had the most frequent instances in the interviews. In our sample, this was partially due to small schools and the heads of school or deans promoting and/or organizing mentoring relationships between staff members. For example, the administrative roles at these institutions personally support staff by attending workshops, lunches, or gatherings to demonstrate the importance of teaching and education-related activities. Instances from the data are provided below.

Institution D (Bac/ A&S), Dean (Engineering)

> *"This is a teaching-oriented institution, so above and beyond those formal structured programs there are many different opportunities to interact with other faculty."*

Institution A (RU/H), Dean (Engineering)

> *"Here we're a little bit unique because the pendulum is balanced here. It's not 100% like at [institution name] you're going to see, you know, honestly, it's all about the research right? We hope they teach well, but it's all about the research. Here it's more about, so when we evaluate them for tenure, I think we're pretty systematic about evaluating their teaching qualifications and their teaching skills. And if someone is not effective in the classroom they are not a good fit for being a professor. They may be a good fit for being a researcher. But we hire professors; we don't hire researchers, right?"*

We analysed the coded transcripts for frequency and percentage covered for each of the codes described above. However, the quantitative comparisons across institutions were not accurately representative of the interview data due to the variability in our sample from each institution. Measures such as frequency counts and percentage/ coverage of the interview transcripts were analysed for each institution based on academic rank and variables such as mentoring and staff support, but not used to quantitatively compare institutions. Data from institutions varied in length of interview and number of representatives from each academic rank category, which led to unequally weighted results as they related to institution type.

Effect of Staff Roles

The excerpts below from the analysis based on the role of the staff, highlight examples of the important themes from the interviews with all of the academics. The meta-analysis, which led to the overarching themes discussed below, were based on the frequency of each code in the individual interviews and grouped based on codes that reflected similar instances.

Leader/Manager

Theme: Staff-support initiatives

Individuals who held roles in leadership positions, valued staff development and supported initiatives that provided resources for staff. However, individuals at that level were not as knowledgeable or informed about the other types of resources available to advise staff on other areas of scholarship such disciplinary research, educational research, learning the institutional culture. Below are excerpts related to the staff-support initiatives and the leader/ manager categorization.

> *"I think that our department heads take over there a lot. I think that when you look at the process, the department head usually has a committee, and one person that is in charge of the self-study, now that we're through that year, and I really don't know the details of that because every department is run a little differently, but I think the department head takes a leadership role to make sure that the new faculty are aware, and being mentored. But we don't really have college-wide programs that I could point to."* - Associate Dean

> *"We work primarily with the departmental coordinators, to work with them. But I'm willing to sit down, and I have an assistant. We have a director for orientation. [She/he] will sit down and also work with the faculty, work through the methodology."*- Associate Dean

Tenure Track Staff (Faculty)

Theme 1: Conference attendance and mentoring
Attending or participating in conferences, workshop, sessions, etc. was an area expressed by academic staff at the assistant level position as an opportunity to interact with other academics and share experiences. The quote below expresses an RU/VH Institution assistant professor's perspective on the benefits associated with supportive education-related opportunities.

> *"[Engineering education conference] That had such a big impact on me. It was wonderful. I felt like that was huge in terms of support. There were many times when I did something in class and it didn't go well I would feel terrible. But then I'm like, you know going there and hearing that not everything is going to be successful. It's OK to try things and have them not work out."*
Theme 2: Advisement on needed Skills
Early career staff felt that support for developing needed skills such as preparing a dossier and other skills required of academics would be helpful in this stage of their careers.

> *"Target some of those skills in assisting people to prepare tenure dossier, negotiate a teaching assignment, or revive a research program. But many faculty (academics) also described the need not just for individual but for workplace transformation. And we could conceive of faculty (staff) development targeted toward enhancing work groups"*

Advisement on needed skills also included to knowing where and how to get funding, how to develop assessment, particularly for accreditation, and how to form collaborations.

Director

Theme 1: Support from Institutional Levels for Teaching
A main theme that arose was the need for change within the institutions for support towards excellence in teaching. They expressed this support should be recognized the same way other scholarship areas, e.g. research, is valued.

> *"And I think, so I'm an assistant professor and really there's a constant pull on time I spend in research and time I spend in the classroom. So really trying to elevate the education portion in a research institute I think is really important. If we want to have innovation in the classroom there has to be a different way to look at our education in the tenure promotion process."*

Theme 2: Scope of the Role of a Director
Academics holding directorship roles had less experience or knowledge about resources available for staff development. While the participants were involved with education-related or focused projects, these were focused on supporting students (compared to centres to support staff as well) through educational practices. In other words, academic staff supervision fell outside of the scope of the participants holding directorship positions. This may be a function of the role of directors as temporary entities, and subsequently leaving less impact on staff.

Discussion & Conclusions

While we framed our analysis to examine the impact of the type of institution and role of the academic, the underlying recommendations of comprehensively and holistically supporting an academic can be applied to institutions regardless of classification. Developing effective and supportive staff ultimately leads to more effective institutions and to do this requires staff participation, a shared vision and strategic planning (Besterfield-Sacre, Cox, Borrego, Beddoes, & Zhu, 2014) at multiple stages of instructional and program development.

We found that fewer staff, regardless of rank/role, had knowledge of support structures related to other areas of scholarship, e.g. disciplinary research, educational research, learning the institutional culture. Developing effective staff was important at all levels whether it was from the perspective of self or personal develop (tenure-track staff) or from the perspective of developing an effective institution (leader/ manager). Support from higher levels, i.e. support from both leadership/ manager positions, and the institution is needed to create effective programs that are utilized by the staff. Creating an institutional expectation of staff participation in programs (Felder et al., 2011) and supporting staff participation are what contribute to program effectiveness and transformative change (Henderson & Dancy, 2011).

A limitation of this study was that the sample of participants catered to individuals involved in engineering education and supported the need for systems and resources aimed at aiding staff. While these individuals are aware of the importance of teaching and education-related development for staff, our findings and the previous literature support an approach for staff development at various career stages, institution types and institutional involvement.

From our sample consisting of established scholars, internationally recognized leaders, as well as early career staff, the recommendations based on this study are:

1) Offer opportunities beyond the department/ school level. In some cases institutional support is available, which can be campus-wide and does not need to be specific to the school, however staff are not aware of the potential support. If an institution provides support

and translates awareness of this support through its leaders/ managers, educating and reaching other staff will be possible.

2) In order to make effective change, seek participation from individuals in leadership/ manager roles (as opposed to individuals in directorship positions, not directly involved with staff support). Additionally, emphasize the role and impact of a leader/manager on supporting staff, especially early career. This will also contribute to creating institutional expectations of academic staff/ faculty (Felder et al., 2011).

3) To influence sustainable, lasting, and effective change, organizations need the support of the institution to assist leaders/ managers to make substantive changes. For this to happen, leaders/ managers must be informed and aware of the available and potential academic staff development opportunities. This study highlighted the importance of a leader/manager, providing the link between the staff and the institution in terms of supporting and making staff aware of support initiatives.

Aligning with Laursen & Rocque's (2009) categorization of career stages and needed skills, e.g. early career (teaching, advising, research, negotiation, and time management skills) we found that individuals in this study valued support for teaching and education, but did not know how to provide resources for other areas of scholarship. An additional recommendation, which would assist and promote effective early career staff, is to make available resources to develop a range of scholarship areas and needed skills. For example, having resources available to help early career staff learn the institutional culture or how to select and participate in productive collaborations would support a more comprehensive or holistic development of an academic. Developing and supporting effective academics within the institution ultimately contributes to the success of the institutions' graduates.

References

Besterfield-Sacre, M., Cox, M.F., Borrego, M., Beddoes, K. & Zhu, J. (2014). Changing Engineering Education: Views of U.S. Faculty, Chairs, and Deans. *Journal of Engineering Education* 103(2), 193-219.

Carnegie Foundation for the Advancement of Teaching, Carnegie Classifications Data File, Sept 2011.

Felder, R.M., Brent, R., Prince, M.J. (2011). Engineering Instructional Development: Programs, Best Practices, and Recommendations. Journal of Engineering Education, 100(1).

Henderson, C., & Dancy, M. H. (2011). Increasing the impact and diffusion of STEM education innovations. Washington, DC: National Academy of Engineering.

Knight, P., & Trowler, P. (2000). Department-level cultures and the improvement of learning and teaching. Studies in Higher Education, 25(1), 69–83.

Laursen, S. L., & Rocque, B. (2009). Faculty development for institutional change: Lessons from an ADVANCE project. *Change* (March/April), 18-26.

Parsons, D., Hill, I., Holland, J., & Willis, D., (2012). Impact of teaching development programmes in higher education. The Higher Education Academy. [ISBN: 978-1-907207-61-7]

Spalter-Roth, R.M., Fortenberry, N., & Lovitts, B. (2007). Acceptance and Diffusion of Innovation: A Cross Curricular Perspective on Instructional and Curricular Change in Engineering. Washington, DC: American Sociological Association and the Centre for advancement of Scholarship on Engineering Education of the National Academy of Engineering.

Strauss, A., & Corbin, J. (1998). Basics of qualitative research: Techniques and procedures for developing grounded theory (2nd ed.). Thousand Oaks, CA: Sage.

Study of New Scholars. (2004). Institutional types: Statistical report. C.A. Trower & J.L. Black. Cambridge, MA: Harvard Graduate School of Education.

US College Rankings (2013). US News and World Report Education. Retrieved from: http://colleges.usnews.rankingsandreviews.com/best-colleges

Acknowledgements

Copyright statement