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NURSE-ACADEMICS' SCHOLARLY PRODUCTIVITY: PERCEIVED FRAMES AND FACILITATORS

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ABSTRACT

The reward system within Universities remains focused on research, with a benchmark of scholarly productivity, especially in relation to promotion. Despite their relative newness to the tertiary system, nurse academics are judged by the same standards as other disciplines. This study sought to examine factors that constrained and/or facilitated scholarly productivity. The study used a questionnaire survey technique to establish current productivity levels, and frame and facilitating factor theory and analysis to identify major constraints and facilitators. Findings from the study were that the unremitting nature of teaching, course coordination and university service workloads interact to the detriment of research and writing. Facilitating factors included a departmental culture that values and supports research, in conjunction with tangible support from University management. Mentorship was viewed as desirable, but often not available. An environment that more actively prioritises, fosters and supports academic scholarly productivity is needed.

Key words: scholarly productivity, frame factors, facilitators, constraints, mentoring

NURSE-ACADEMICS' SCHOLARLY PRODUCTIVITY: PERCEIVED FRAMES AND FACILITATORS

INTRODUCTION

The purpose of this study was to investigate the influences on nurse-academics' scholarly productivity. It is the second part of three papers submitted arising out of this study. Part 1 deals with a description of the current status of scholarly productivity (Roberts & Turnbull, 2004) and Part Three an analysis of the relationship between mentorship and scholarly productivity (Turnbull & Roberts, 2004). Mainstream nursing education in Australia has been located in the Higher Education sector for approximately fifteen years; the first five of which were in Colleges of Advanced Education and the last decade in the Universities. With the approach of the millennium, it seemed to be a suitable time to investigate the progress that had been made since the previous study carried out in the mid-1990s.

Earlier studies published in the latter half of the 1980s in the United States had shown that in the United States, average annual scholarly productivity of nurse-researchers was approximately half of a peer-reviewed journal article (Ostmoe, 1986) up to one refereed and one non-refereed article (Megel et al., 1988), with different indices possibly accounting for the difference in findings. In Canada a study published in 1990 Acorn (1990) reported an average of 1.3 publications per year, again not restricted to peer reviewed articles. In Australia, Roberts (1997) found that on average, nurse-academics published the equivalent of 0.9 refereed articles per year, using a Scholarship Index that weighted different types of articles according to the importance given them by the University sector. Roberts also found that approximately one-third of nurse-academics had no publications. In a study of early career academics, Bazeley (1996) notes the lack of tradition in research amongst Australian nurse academics.

There are factors that influence scholarly productivity, for example teaching load (Megel, Langston & Creswell, 1988) and motivation (Ostmoe, 1986). For Australian nurse-academics, work context such as lack of time and teaching commitments, particularly clinical teaching commitments, obtaining one's own qualifications, and the university and faculty administration

were also seen as strong constraints (Roberts, 1997). Mentorship was seen as mildly facilitating, as were teaching activity and research. The latter was the strongest facilitating factor.

This study was a repeat of a previous study (Roberts, 1997), with refinements of the questionnaire so that it would target previously identified influences on scholarly productivity. With the increased workload due to the downsizing of the system (Roberts & Turnbull, 2002b) it was expected that the constraints on scholarly productivity, particularly lack of time, would have intensified.

Theoretical Framework

The theoretical framework for this study was frame factor theory and facilitating factor theory. Frame factor theory is a pedagogical theory that explains the degree of control teachers exert over their curriculum decisions (Bernstein, 1971). A teacher's decision-making space is limited by factors, for example classroom constraints, which influence curriculum decisions. Frame factor theory has been used in nursing education to explain nurse- academics' instructional planning decisions and to develop facilitating factor theory (Roberts, 1991). In a previous study, frame and facilitating factor theory were shown to be valid for nurse-academics' scholarly productivity (Roberts, 1997). The work context, university administration, course co-ordination and development, and personal context, and lack of ability were shown to be frames, with work context being the only strong frame. The facilitators were shown to be mentoring, job activity, and administration, although none of these was strong.

It was expected that scholarly productivity would be constrained by lack of time, teaching commitments, obtaining one's own qualifications, and the university and faculty administration. It was also expected that mentorship, teaching activity and research would facilitate it.

METHODOLOGY

This study was descriptive and correlational in design, employing a questionnaire survey technique. The sample was a stratified random sample. The sampling frame was a database of nurse-academics recently updated from 1994 for a more recent study (Roberts & Turnbull, 2002-2003) which included all Australian nurse-academics in full-time employment. The sample surveyed comprised 291 nurse-academics from Australian universities. The stratification was based on academic rank. All professors (Level E) (except the principal author) and associate professors (Level D) were included. Half of the senior lecturers were included and one-fifth of the lecturers (level A and B). The sample was stratified this way in order to maximise the data collected as it is known from previous studies (Roberts, 1997; Roberts & Turnbull, 2002a; Roberts & Turnbull, 2002-2003) that publication is in proportion to academic rank. The effects of stratification were removed for the data analysis by performing computations that unweighted the sample.

Instrument

The 20-item instrument was an adaptation of the questionnaire used in a previous study. Minor revisions to clarify the items of scholarship were carried out by the authors on the basis of insights gained during analysis of the previous data. The questionnaire was not re-trialled. It included demographic data such as age, initial nursing education, and state of employment, academic rank and highest academic qualification. Respondents were asked to enumerate their scholarly productivity over a period of two calendar years, from January 2000 to December 2001 inclusive. They were also asked about constraints and facilitators on scholarly productivity that had been found from previous research to be important. Respondents were requested to give written comments about influences upon scholarly productivity by the invitation "Please feel free to add any other comments on publication or mentorship."

Data Collection

The questionnaires were sent out by post to the various institutions for distribution. Included in each packet were a letter, a questionnaire, and a post-paid return envelope. To avoid unnecessary

follow-up, a postcard was also included in the packet. It was to be posted under separate cover advising the researcher that the respondent had completed and posted the questionnaire. Follow-up questionnaires were sent to all those who had not returned the postcard.

Data Analysis

Quantitative data were analysed by computer. In order to compute scholarly productivity, and to analyse influences on it, the following ratings were used (Table 1).

Table 1 Ratings of Items Comprising Scholarship Index

GSI	DSI	Item	Rating
√	√	Book, major author:	2
√	√	Refereed article or book chapter	
√	√	sole author	1.0
√	√	First author	0.75
√	√	Second or later author	0.5
√		Non-refereed article	
√		sole author	0.2
√		First author	0.15
√		Second or later author	0.1
√		Editorial	0.2
√		Conference Paper	
√		Sole author	0.2
√		First author	0.15
√		Second or later author	0.1

The data were analysed using two ratings: the General Scholarship Index (GSI) including all forms of scholarship, and the DEST Scholarship Index (DSI) for research books and refereed articles only. These were developed by the authors based on Roberts (1997) and the DEST criteria. The GSI incorporates the DSI. The GSI was used to compare subgroups of nurse-academics and to compare the results of this study with earlier findings. The DSI was used to compare nurse-academics with other disciplines.

In order to determine relationships between variables, statistical analysis was used. Demographic variables and types of publications were described by means of frequency distributions. Because the scholarship index data were strongly skewed, non-parametric tests such as the Mann-Whitney U-test and the Kruskal-Wallis test were used to determine initial statistical significance of

individual variables. To compare publishing expectations of respondents and their perceptions of their university's expectations contingency tables were employed. A similar procedure was used to compare participants' perceptions of the views of themselves and the university on the importance of publishing. For the logistic regression tests, the GSI and DSI were reclassified into high and low publishing groups, with those above the mean being classified as high and those below the mean as low.

In order to determine the influences on scholarly productivity, the data from the sets of constraints and facilitators were subjected to a factor analysis using an oblique solution. The factor analysis showed which frame and facilitator factors were correlated with each other and could be collapsed for further data analysis. The factor analysis reduced the eight frame factors and 12 facilitating factors to two and one respectively. To be considered a factor, a group had to comprise a minimum of three items and the individual item loadings had to reach a criterion of 0.6. The two frames for constraints were 'Teaching and Curriculum', which comprised the factors 'teaching commitments', 'course development' and 'course co-ordination' and 'Facilities' which comprised the factors 'library facilities', online facilities and 'physical environment'. 'University service' and 'getting own qualifications' failed to load on a factor and were treated separately in subsequent data analysis. For the set of facilitators, an orthogonal solution was used. Only one factor was identified: 'Research', which comprised 'research', 'self-discipline' and 'research assistant'.

To facilitate statistical analyses, the Likert-type ratings of factors influencing scholarly productivity were re-coded to score nil constraint or facilitation as 0, mild constraint or facilitation as 1, strong constraint or facilitation as 2 and very strong as 3. The group mean score for each factor was calculated to give factor index ratings of 0-3; a high mean score indicates that respondents as a group rated a factor as a strong constraint or facilitator for publication. The ratings for strength of influence were as follows:

0 - 0.6	0.7 - 1.5	1.6 – 2.3	2.4 -3.0
very weak	weak	strong	very strong

Demographic variables, frame and facilitating factor ratings and types of publications were described by means of frequency distributions. To compare publishing expectations of respondents and their perceptions of their university's expectations contingency tables were employed. A similar procedure was used to compare participants' perceptions of the views of themselves and the university on the importance of publishing and the origin of mentoring. Analysis of variance and t-tests were used to explore the interactions of demographic variables, and frame and facilitating factors. The level of confidence was set at 95% ($p = <0.05$).

Data were analysed inductively using a thematic approach, whereby the researchers identified similarities and contradictions between participants' perceptions. Exemplars were chosen to reflect the essence of the themes and these are presented as quotations in this paper.

Ethical Aspects

The study was approved by the Human Ethics Committee of the authors' university. A letter of explanation was sent to the participants inside the questionnaire packet. Filling in the questionnaire was taken to be informed consent as it was sent directly to the participant so that there could be no influence on the process.

RESULTS

The return rate for the questionnaires was 54%, including follow-ups.

The Sample

Of the respondents, 82% were female, which is consistent with proportions of nurse-academics generally (Roberts & Turnbull, 2002-2003). With regard to age, almost half (48%) were between 41-50 years, over a third (38%) were between 51 and 60 years, and few were in their twenties (2%) or thirties (7%) or over 60 (5%). The higher average age of the sample reflects the weighting of the sample towards those in the upper academic ranks. Approximately one-third of respondents

were from Victoria (31%), with one-quarter being from NSW (24%) and Queensland (23%). SA comprised 15%, WA 5%, ACT 1%, and Tasmania <1%. Some states were over-represented in the sample; however as state has not been shown to affect scholarly productivity (Roberts & Turnbull, 2002-2003) this was unimportant.

In terms of employment characteristics, most (80%) were permanent staff, as opposed to employed on a contract. The largest group (41%) came from medium-sized universities while the remainder were split almost equally between large and small universities.

As far as academic rank was concerned, the sample comprised professors (22%), associate professors (16%), senior lecturers (34%), lecturers and associate lecturers (28%). Since there were so few associate lecturers, they were combined with lecturers for the purposes of analysis. In terms of qualifications, most (85%) received their first nursing qualification from a hospital school, while few received it from a university (10%) or a college of advanced education (4%). Over half (58%) had a doctoral degree while a third (36%) had a master's degree and few (6%) had less than that as their highest qualification. However, this sample was weighted according to academic rank and since academic rank and qualifications are strongly linked (Roberts & Turnbull, 2002-2003), this naturally represents an over-representation of higher qualifications rather than an actual increase in proportion with higher qualifications.

Scholarly Productivity

Scholarship Index

After unweighting, the mean scholarship index was 1.97, which equates to approximately two refereed journal articles per year. As stated earlier, a DEST index was calculated from the authorship of refereed journal articles. This is likely to be a slight overestimate as no distinction was made between research and non-research articles and DEST does not recognise the latter. After unweighting, the mean DSI was 0.8, which equates to an average of less than 1 refereed journal article per person per year. This was approximately 40% of the GSI. The GSI and DSI were

strongly correlated ($r = 0.7$), which suggests that this phenomenon affects nurse-academics at every rank. This is explored in depth in a separate paper arising from this study.

Influences on Scholarly Productivity

The influences comprise both constraints and facilitators. In presenting the frame and facilitating factors, the quantitative results will be given and illustrated by exemplars from the written comments, which were voluntary and were not quantified.

Constraints on Publication

Course co-ordination, teaching commitments, and university service were the constraints that affected the most people, with almost three-quarters rating them as a strong constraint (Table 2).

Table 2: Perceived Constraints on Scholarly Productivity

	Strong %	Mild %	Nil %
Course Co-ordination	72	16	12
University Service	72	19	9
Teaching Commitments	71	21	9
Course Development	64	16	20
Getting own qualifications	55	9	36
Physical working environment	5	8	87
Lack of library facilities	4	5	91
Lack of online facilities	3	2	96

These are major components of the nurse-academic's everyday workload. The effects of workload are encapsulated in the following written statement: *Mainly work!! We are still 'flogged like nurses - Jill of all trades, master of none!* Another respondent, commenting on the effect of recent changes in the University sector stated: *Universities are now a business, there is no time allocated for scholarship. Scholarship requires time, no time anymore.*” Still another wrote:

University cutbacks in funding mean I am fodder, used as a stopgap for teaching. During 1990-1997 there were an average 28-32 full time academics employed in our school of nursing. As people left or were offered redundancies they have not been replaced. Consequently there are now only 10 full time academics left! To do everything that 32 used to do. In addition we have at least 150 overseas students who need extra help and knock on my door all day! And enrolments and courses continue to grow. My teaching load as associate professor is 14 hours a week. Only reduced at times by the number of research students and how much funding I have won from grants. I no longer take the time, energy or motivation to apply for grants. I am burnt out.

Course development, which occurs more sporadically, was seen by almost two-thirds (64%) as a strong constraint. Factors identified in the written responses were lack of time, travel between campuses, life outside work, being a sole parent, and development of a new position and research program, lack of mentorship, and the politics of collaboration. Time spent at meetings was also identified: one respondent wrote: *School meetings are one of the major constraints. Some of these meetings are a waste of time and take time away from research.*

The culture of the nursing department was identified in the written comments as a constraint. One respondent wrote: *Writing is not seen as genuine activity.* Another wrote: *Without formal support programs there seems to be a sink or swim attitude and if you are trying to write for publication in a nursing department that has a low research culture, then there can be negative repercussions.* This lack of support was also identified by another: *Of the three schools that I have worked in, none have provided any type of support to boost publications.*

There was a link between academic rank and perception of teaching commitments as a constraint, with a higher proportion of respondents at lower academic ranks perceiving teaching commitments a constraint ($p = 0.0001$). One wrote: *another constraint is that in our particular school there are very few teaching-free weeks because when the internal students are away we run extensive residential schools.* This comment illustrates the unremitting nature of teaching commitments.

The same link was seen for course co-ordination ($p = 0.0002$) and course development ($p = 0.0001$). However, it seems that life as a nurse-academic is not easy for those in the higher ranks either; one respondent wrote:

Despite being appointed at level E, I have no secretary, no P.A. [personal assistant], no R.A. [research assistant]. The university expects its professors to publish/research, but provides no infrastructure support. All my scholarship is done outside of work hours, e.g. weekends and holidays and late at night. I'm bogged down with administration.

Of those who needed to upgrade their qualifications, the majority (55%) considered this a strong or very strong constraint. One respondent wrote: *I spent last year completing my PhD, so I am just recovering.* A higher proportion of those in the lower academic ranks considered getting their own qualification a constraint ($p = 0.0001$).

The two frames, 'Teaching and Curriculum' and 'Facilities' were analysed to see their affect on scholarly productivity. A multiple regression showed that only 'Teaching and Curriculum' had a statistically significant predictive effect on the GSI ($p = <0.0001$). However, it was only moderately negatively correlated to it ($r = - 0.38$) and it only accounted for 15% of the variance ($r^2 = 0.15$). Similarly, only 'Teaching and Curriculum' had a predictive effect on the DSI ($p = 0.02$) and it only accounted for 16% of the variance.

Facilitators of Scholarly Productivity

Time was seen as the most important facilitator, with effective time management and professional development leave perceived as very helpful by most of the sample (Table 3). Self-discipline, which is linked to effective time management, was also seen as facilitating by most. Also, having a research assistant, which can generate time, was seen as an important facilitator.

Table 3: Facilitators of Scholarly Productivity

	Very Helpful %	Mildly Helpful %	Not Helpful %
Effective time management	91	8	1

Professional development leave	89	8	3
Research assistant	87	10	3
Self-discipline	87	8	5
Research activities	86	10	4
Online facilities	76	14	10
Research grant funding	75	13	12
Library facilities	74	17	9
Mentorship	67	18	15
Physical environment	53	31	16
Line supervisor	28	27	45
Teaching Activities	17	34	49

Research activities were also seen by most (86%) as highly facilitating. As one respondent commented about the writing part of the research process:

We have found that a writing group works well and gets more publications. One person writes the bones and the rest of the group work on the paper to get it to a publishable standard.

Another wrote:

I am a member of an Action Learning Group, which specifically focuses on getting published. Working with the members in the group enables you to get feedback on your work and also to set realistic targets and remain motivated (most of the time!)

Mentorship, surprisingly, was seen by only two-thirds (64%) as highly facilitating and was ranked slightly below online and library facilities and research activities and funding. Mentorship as a facilitator had a negative association with academic rank ($p = 0.004$); 40% of professors saw it as 'not applicable' and only a quarter saw it as very or extremely helpful. One respondent wrote *I was not able to have a mentor, senior staff were already mentoring others.* Another wrote:

I have seen nurse academics acting, i.e. claiming to act, as mentors, but I don't think I have actually seen true mentorship at work. To me, a mentor is someone who is able to provide more than advice on journal selection, timelines, writing drafts etc. I think of mentorship as a deeper, more enriching and invigorating relationship than that - something that occurs naturally from significant experience and commitment to a particular thing. So perhaps the problem is mine - maybe I am expecting too much, but I do think there should be an important difference between the role of mentor and that of organiser. I also think that it is probably more beneficial to have a mentor at certain points in your career, e.g. earlier rather than later.

Teaching activities were seen as helpful by about half (51%) of the respondents but as highly facilitating only by a few (17%). This is related to the strength of teaching commitments as a constraint. A simple regression showed that the 'Research' facilitator was significantly correlated only with the DSI ($r = 0.24$; $p = 0.04$), and it only accounted for 6% of its variance.

DISCUSSION

The return rate for this study was acceptable for a postal questionnaire and thus the results have a considerable amount of external validity.

Constraints

This study has shown that the major constraint on scholarly productivity for this group of nurse-academics at the end of the twentieth century was the work context. "Teaching and Curriculum" was the only frame that predicted scholarly productivity. Specific factors in that frame were teaching commitments, course co-ordination, and university service. These are part of the everyday workload and indicate that a high workload can constrain scholarly productivity. These findings support the previous findings of Ostmo (1986) and Roberts (1997).

The nature of teaching seems increasingly unremitting, yet rhetoric notwithstanding, where promotion is concerned, teaching scholarship is not valued as highly as research scholarship (Roberts & Turnbull, 2002a). The downsizing of staff numbers at the same time as a drive to increase student numbers must inevitably result in an increasing workload for those who choose to remain in the tertiary system. The push for universities to be more self-sustaining in terms of funding has led to competition to attract overseas students. As one respondent pointed out, while such students attract high fees, they may require a greater level of support emotionally and academically, especially where English is a second language. Nor does the use of intensive or summer courses necessarily lighten the load. Summer semesters do not automatically spread

workload equitably and may only result in increased teaching hours with less time that could be apportioned for research and writing.

Course coordination was identified as another strong constraint. Non-academics could do much of this, ie. the provision of basic information through non-academic staff. The use of the Web is increasing as a means of disseminating information, but again perhaps the lecturers need better negotiating and time management skills so that they can encourage students to access information that is readily available. Perhaps the role of the course coordinator needs to be better understood as that of an academic adviser only.

Those with lower academic rank found teaching commitments and course co-ordination more of a constraint on scholarly productivity than those from higher academic ranks, perhaps because these usually comprise more of the workload for the lower ranks. Similarly, those in the lower ranks may have been more constrained by having to obtain their own higher qualifications. Those in the higher academic ranks are more likely to have already received their doctorate (Roberts & Turnbull, 2002a).

Course development was seen as less of a constraint, perhaps because it is not as constant a demand. The time and intellectual effort associated with course or unit development are not necessarily given the recognition they deserve. A quality curriculum is more likely to attract and retain students, and should be recognised for the intellectual scholarship it involves. However, it too fails to receive the kudos, financially and intellectually, that research and writing receive.

The culture of the work environment was also identified, with respondents indicating a culture that gives primacy to teaching and a lack of acceptance of research as valid work. Since these comments were written and not measured, it is impossible to state how pervasive this attitude is and it may not be typical of academic culture in nursing departments. However, the facilitation of scholarly productivity would benefit from the elimination of workplace culture that is inimical to research and writing.

In this study, physical facilities, such as the working environment, and resources, such as the library and Internet access, were seen as having little effect on scholarly productivity. This indicates either that these facilities are seen as adequate for writing, or that writing does not occur much at the University, but rather at home, as several respondents stated.

Facilitators

Just as lack of time was seen as a constraint, availability of time and effective time management were seen as facilitators. Perhaps including sponsored time management courses in professional development programs would be useful for those who perceive a need for them. At the end of the day, everyone has had twenty-four hours; it is how they managed those hours that makes the difference.

Research activities were seen as helpful to and predictive of scholarly productivity. Obviously, research has to be done in the first place if it is to result in publications, and this can be facilitated by research grants, research assistants and time allocated for research activity. Increased scholarly productivity is difficult to sustain and nurture without organisational support and resources. Several respondents indicated that working in a writing group was beneficial, and this supports McVeigh's (2002) findings. This collaboration should be encouraged. Also, professional development leave was seen as facilitating. It would therefore be useful for department heads to develop a structured plan for staggered release of staff for professional development leave. Individuals who have been identified as productive should be encouraged to apply.

Mentorship was viewed as less facilitating than expected, but was seen by almost two-thirds as facilitating and this finding supports the earlier findings of Megel (1988) and Roberts (1997). An evaluative study by Brown (1999) also supports mentoring although much of this is related to orientation/induction. Interestingly, the higher ranks saw mentoring as less helpful to them personally, perhaps because they were not mentored themselves or have outgrown the need for it. Teaching activities were only perceived as helpful by a minority. This is not surprising since they

were perceived as a strong constraint. This may indicate that nurse-academics have yet to develop a strong nexus between the subject matter of their teaching, research and clinical practice.

The strength of this study is that it has built on the previous work of Roberts (1997), and Roberts and Turnbull (2002-2003) and has established a millennial benchmark for influences on Australian nurse-academics' scholarly productivity. The return rate for this study was satisfactory for a postal questionnaire and thus the results have a considerable amount of external validity. Moreover, the fact that the findings of this study support the findings of a previous study with a high return rate (Roberts, 1997) indicates that they are well grounded.

The weakness of this study is that the qualitative written comments were not in-depth. A further study, using qualitative methodology, was carried out by (Worrall-Carter, 1995) contemporaneously with this one, and this addressed the deficiency of knowledge in this area. They found that nurse-academics felt under pressure to publish and encountered problems such as the difficulty of gaining higher degrees while undertaking additional research.

A problem for nursing faculty is that workloads are likely to be allocated on the traditional basis of other disciplines where there is no expectation of maintaining clinical skills, for example Physics, or where clinical skills are maintained by acting on a consultancy basis, for example, Medicine. Such roles are integrated into the workload rather than on top of it, as occurs in schools or faculties of nursing. Ramcharan (2001) argues it is unrealistic to expect faculty to fulfil the university requirements of administration, teaching, community service, research and publication plus maintenance of clinical skills. Worrall-Carter and Snell (2003-2004) also note the role strain for nurse academics adapting to the scholarly expectations of the university system, and found that strategies to assess workloads realistically were seen as beneficial to scholarly productivity.

CONCLUSION

If scholarly productivity is to rise, some way must be found to balance the workload so that the nurse-academic can find more time for research and writing. The administration of the university departments in which Nursing education is situated need to take into account the differences in the workloads of various disciplines vis `a vis the burden of clinical teaching. This could be justified by nurse-academics quantifying workloads objectively and using this information in support of reasonable workloads.

Part of the answer may lie in teaching nurse-academics better skills in negotiating and delegating because the culture of nursing traditionally has made it hard for nurses to refuse to provide assistance when they perceive that they are needed. Nurses who have been socialised into wanting to be helpful often find it difficult to put their own goals first and may subordinate their scholarly efforts to the exigencies of the workplace. It could also be helpful, as suggested by (Worrall-Carter & Snell, 2003-2004) to teach them to focus their research, teaching and clinical practice around selected themes.

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