Developing Recommendations for Mentoring Programmes in the Undergraduate Health Sciences.

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Abstract.

Mentoring is a reciprocal relationship between an academic member of staff and a student for the purpose of supporting personal and professional development. Formal mentoring programmes offer mentoring to all students and are recommended in undergraduate health professionals' educational training. However, there is little guidance in the literature on considerations when planning a formal mentoring programme. This research aimed to identify the ten most important recommendations of an effective mentoring programme in the undergraduate health sciences. The nominal group technique, a structured consensus group method, was used to generate and rank ideas, with iterative rounds of discussion and ranking. There were ten participants, nine of whom teach in higher education in health sciences and had experience in mentoring and/or delivering mentoring programmes. The top three recommendations related to governance of mentoring programmes (purpose for the programme, quality assurance and provision of an operational manager). Four recommendations related to the needs of the mentee (support services, matching, modelling and stability of the relationship) and three related to the needs of the mentor, with a focus on encouraging and supporting their engagement (training, time, and resources). In conclusion, the nominal group technique was effective in reaching consensus on elements of effective mentoring programmes in the undergraduate health sciences. Further research, through empirical and non-empirical methods, is needed to advance the evidence-base for effective mentoring programmes.

Keywords: Education; Health sciences; Mentees; Mentor; Mentoring; Mentoring programme; Undergraduate.

1.   Introduction.

1.1 Mentoring in the health sciences.

As students' progress through their undergraduate training in medicine, nursing and health sciences they must not only successfully navigate a busy and demanding curriculum, but also need guidance on extra-curricular activities, such as personal development and career guidance, and opportunities to engage in research and networking with the profession (Bettin, 2021). Mentoring has the ability to support students '*offline*' in these extra-curricular activities. There is no universal definition of mentoring, which is reflected in the literature.

Disch (2018) describes a mentoring relationship as one where a more experienced person has a guiding influence on a younger or less experienced person. Disch goes further and defines nine roles of the mentor; these are a guide, tutor, advisor, role model, coach, counsel, sponsor, advocate and teacher. Others, by contrast, focus on a distinction between mentoring and other professional development supporting roles, such as, preceptorship, counselling, role-modelling and supervision (Lin, Chew, Toh & Krishna, 2018). Krishna, Toh, Mason & Kanesvaran (2019) propose a definition of mentoring as a mutually beneficial relationship between mentor and mentee that is dynamic, context dependent and goal sensitive. At a postgraduate level Peck, McCall, McLauren & Rotem (2000) describe mentoring as facilitating "*the process by which health professionals keep updated to meet the needs of patients, the health service, and their own professional development*". For the purpose of this research we used the definition by Fornari et al. (2014, p.432) who define mentoring as a reciprocal relationship where a mentor provides guidance through listening and reflection on the mentee's career development and professional growth.

While there is no evidence that mentoring has an impact on academic performance, it is highly valued by students who consistently rate mentoring as important or very important (Aagaard & Hauer, 2003; Meinel et al., 2011; Fallatah, Park & Farsi 2018). Benefits of mentoring reported include support of clinical skills acquisition, promotion of professional attitudes and increased research outputs (Krishna, Toh, Mason & Kanesvaran, 2019). At postgraduate level, through supporting the development of social, personal and professional skills, mentoring supports the continuous medical education and continuous professional development of healthcare professionals (Chia et al., 2020). For some, the value of having a mentor cannot be

underestimated and many experienced clinicians can point to a mentor who guided them during their formative years on the pathway to a successful career (Roche, 1979). The benefits for academic staff, who take on the role of mentor, include pride in development of the next generation and increased self-reflection on their own teaching and career development (Ramani, Gruppen & Kachur, 2006).

1.2 Mentoring programmes.

In undergraduate health sciences, mentoring can be formal or informal. Informal mentoring occurs where an individual student and a member of faculty or a healthcare professional form a spontaneous mentoring relationship, with mutual commitment to promote personal and professional development (Rose, Ruktalis & Schuckit, 2005). By contrast, formal mentoring programmes assign mentors to mentees, who may or may not be known to each other prior to the match; these mentor-mentee pairs require support from their school. Formal mentoring programmes have the advantage over informal mentoring in that they provide mentoring opportunities for all students. They also offer mentoring early in the curriculum and at transition points, such as moving from the preclinical phase into the clinical phase of training (Disch, 2018). Furthermore, mentoring programmes convey a student-centred, caring organisation and enhance the reputation of the health education institution. They can also support retention of faculty, strengthen their identity within a school and increase job satisfaction. There are, however, challenges in establishing mentoring programmes; these include the management of frequently large student groups, providing training for mentors and mentees, and evaluation of the programme (Ramani et al., 2006; Fornari et al., 2014).

1.3 Aim of the study.

Based on the above considerations, there is a growing recognition of the merit of establishing a formal mentoring programme. Despite this, little guidance is given on how best to set up a formal mentoring programme. This research, therefore, aimed to identify the ten most important elements of an effective mentoring programme in undergraduate health sciences to inform such developments.

2.   Methodology.

To ensure a systematic means to develop consensus on the ten most important elements of an effective mentoring programme, the nominal group technique (NGT) was chosen. Ethical approval was obtained from the local Clinical Research Ethics Committee (reference number C.A. 2105).

2.1 The nominal group technique (NGT).

The NGT was developed by Van de Van and Delbecq in the 1960s and is a structured, face-to-face consensus group method, involving five to twelve participants and usually running from 1.5 to 6 hours (Van de Ven & Delbecq, 1972; Humphrey-Murto, Varpio, Gonsalves & Wood, 2017). Participants are required to have experience and expertise in the problem being explored. Each participant is asked to generate ideas independently which they share with the group. This is followed by discussion to seek clarity and understanding, remove duplicates and agree on a final list of topics (Gallagher, Hares, Spencer, Bradshaw & Webb, 1993; Carney, McIntosh & Worth, 1996). Participants then individually rank the list, in order of importance, in relation to the nominal (research) question. The NGT method creates a ranked summary of results. The advantage of this process is a reduction of researcher bias as the results are not analysed or interpreted by researchers, but rather are finalised by group members by the end of the meeting.

The NGT method was favoured over the focus group method as it is more structured and the discussion is facilitated by a researcher, which limits the opportunity for dominant participants to take control of the discussion (Humphrey-Murto et al., 2017). The Delphi technique is another consensus group method the researchers considered; in this method participants do not meet up but instead are sent a questionnaire on the topic of interest and return their responses to the researchers who then collate the responses (Humphrey-Murto et al., 2017). This process is repeated to achieve consensus. A discussion among participants does not take place. The researchers' decision to use the NGT was based on the opportunity it provides to both generate ideas and facilitate discussions among a group of participants. The setting of the study, during a healthcare educators' conference, presented an opportunity to conduct the NGT, which also influenced the choice of consensus group method in this study.

2.2 Participants.

The Irish Network of Healthcare Educators (INHED) hold an annual scientific conference which is attended predominantly by healthcare educators from the Republic of Ireland, Northern Ireland and the United Kingdom (UK). With permission from the conference organisers, a research workshop was conducted during the 2019 scientific meeting. An invitation email was sent to medical, nursing and health science schools in the Republic of Ireland and Northern Ireland and to registrants in advance of the scientific conference. The inclusion criteria for participation were those who had experience in the design of, and/or providing support to, mentoring programmes and/or academics who were subject experts on mentoring programmes. Potential participants confirmed their interest and were emailed a participant information leaflet (PIL) and an article on mentoring programme design by Fornari et al. (2014) was provided as pre-reading. The purpose of the pre-NGT reading was to stimulate reflection on the challenges and constraints in the implementation of effective mentoring programmes.

2.3 Data gathering.

Participants signed a consent form and completed a short demographic form on gender, ethnicity, and experience in mentoring programmes. Two of the authors (MP and CH) facilitated the NGT, while two others (YF and SS) took field notes during the workshop. The facilitators explained that the research aim was to seek and share clarification on the meaning of individual ideas to reach consensus. Participants were asked to answer the NGT question "*Based on your knowledge what elements of an undergraduate mentoring programme are most effective in achieving its objectives*". The steps of the NGT are outlined in Table 1.

Table 1: Stages, tasks and time allocation in the nominal group technique.

	Facilitators	Participants	Time (mins)
Stage one	Welcome and introductions	Introductions	15
	Introduction of Nominal Question	Silent	5
	Brainstorming: participants independently and privately invited to record their ideas on the nominal question	Each participant writes their answers silently on their own paper	10
	Facilitation of idea sharing and recording on chart	Systematic sharing: one idea from each person is shared in a round-robin format until saturation occurred	10
Stage two	Facilitation of discussion and updating item list	Discussed ideas, agreed on grouping of themes or combining duplicate items	30
Stage three	Presentation of updated items	Ranking of items (individually)	5
	Collection & collation of results	Break	15
Stage four	Presentation of rankings and facilitation of discussion	Discussion, shared opinions and reactions	30
Stage five	Invite group to complete second ranking	Re-ranking of items	5
Stage six	Presentation final 'top 10' recommendations	Finish	5

3. Results.

Ten academics participated in the study, of whom nine were female. Eight were based in schools of medicine, nursing and health sciences in the Republic of Ireland, one was based in a UK School of Medicine and one participant worked at the Irish Medical Council, the accreditation body for medical schools in the Republic of Ireland. Six participants were academics in medical schools and three in health sciences schools. The majority were white Caucasian (8/10) and had experience as mentor (6), mentee (2) and/or a role on their school mentoring programme committee (5). Years of experience in mentoring programmes ranged from less than five (2 participants), six to ten (2 participants) and more than 11 (3 participants). Here we present the findings of the NGT at each stage.

3.1 Nominal Group Technique Stages.

Stage one: Introduction of Nominal question, brainstorming and sharing of ideas

Stage one generated 35 items as presented in Table 2.

Stage Two: Group discussion of ideas

Each item was discussed in turn regarding content, meaning and relevance, with the facilitators returning regularly to the nominal question. One item, "*one-to-one*" (relationship) was removed as the group agreed this was implied in the mentoring relationship. Items were combined into themes, resulting in a total of thirteen themes (Table 2).

Table 2 Results of stages one, two and three of nominal group technique.

	Stage One Item generation from round robin	Stage Two Grouping of themes	Stage Three Points	Ranking
1 2	Purpose of mentoring programme Definition of mentoring programme	Purpose of mentoring programme	87	1
3 4 5 6 7 8 9 10 11 12 13	Trust Guidelines (provide guidelines to mentor and mentees) Evaluation of programme and processes Safeguarding (mentor, mentee) Complaints, processing thereof Leadership Frequency of (meetings and contacts) Privacy Formal/informal feedback Boundaries Policy	Quality Assurance	77	2
14 15 16 17 18	Record keeping Administration Safe space Protected time People management	Provision of an Operational Manager	58	3
19	Time and resources	Time and resources	56	4
20	Induction	Training, induction & mentor support	52	5
21	Engagement (of mentor & mentee)	Engagement (of mentor & mentee)	50	6
22 23 24 25	Selection of mentors and matching with mentees Tailoring Peer learning Student led	Matching mentee with mentors	39	7
26	Referral to support services available	Support services	36	8
27	Recognition	Recognition and	33	9

		Reward		
28	Stability of relationship	Stability of relationship	15	10
28	Practice, role modelling	Modelling	15	10
30	Role play			
31	Professionalism and being a role model			
32	Inspirational model			
33	Feedback	Formal and informal feedback	4	11
34	Debriefing	De-briefing by management and medical educators)	3	12
35	One-to-one process	Removed (as implied)	0	

Stage Three: Presentation and ranking of themes

Themes were ranked independently by each participant, from 1 to 13, where each participant was asked to allocate a score of 13 to the theme considered most important, grading down to a score of one to the least important theme. The research team did not present any specific criteria for the ranking of items, so that participants had freedom to prioritise themes based on their experience and expertise in mentoring programmes. The researchers added up the points for each theme to create a ranked table, representing the groups' results to inform stage four.

Stage four: Presentation of rankings and facilitation of discussion

A discussion took place on the thirteen themes, the rankings of these themes and the items grouped under each theme. A suggestion to move "*feedback*" and place it under the theme "*quality assurance*" was agreed by the group. The results of stage four, therefore, yielded 12 themes.

Stage five: Second ranking of themes

Participants were asked to rank these final twelve themes by allocating a score of twelve to the most important, grading down to one as the least important one (Table 3). The researchers added up the points for each theme to create the final top ten recommendations.

Stage six: Presentation of final top ten recommendations

The group reviewed and agreed the final top ten recommendations representing their views, based on their experience and knowledge (Table 3).

<u>**Table 3 Final ranking: Top 10 Recommendation for Effective Mentoring Programmes in the Undergraduate Health Sciences.**</u>

1.   Purpose of mentoring programme
2.   Quality assurance
3.   Provision of an operational manager
4.   Training, induction and mentor support
5.   Time and resources
6.   Engagement and recognition
7.   Support services
8.   Matching mentor with mentees
9.   Modelling
10.   Stability of the relationship

3.2 Qualitative findings from NGT field notes.

The field notes provided a rich record of the discussion and the group's understandings of the meanings of items and themes. The following summarises the meanings behind the ten recommendations, as agreed by the group.

Purpose of mentoring programme.

Participants proposed that, in order for a monitoring programme to be effective, the process needs to be described and explained clearly to staff and students. For example, one participant expressed the view that *"…mentors and mentees need a clear understanding of what the process is…what is the purpose of the mentoring programme…what is expected…"*.

Quality Assurance.

Quality assurance relates to supporting processes and governance procedures that need to be made explicit to operationalise a mentoring programme. These include policies on attendance/non-attendance, confidentiality, frequency of meetings, evaluation and feedback, and safeguarding both the mentee and mentor in exceptional circumstances including student distress. Furthermore, as the relationship is paramount to a successful programme, mechanisms are required to cease a mentor/mentee relationship where there is a breakdown in the relationship; as one participant noted "*there is a need for an appraisal method of mentoring when it is not working out*".

Provision of an Operational Manager.

Participants agreed that a formal mentoring programme needs to be managed, as summarised by one participant, who asked "*Who is managing the whole system?*". Leadership was also grouped under provision of an operational manager; one participant observed that leadership "*means knowing the big picture…knows purpose...understands how it is going to work, in the bigger context*." A second participant explained the role of the leader as "*the leader keeps all the team on board*."

Training, induction and mentor support.

The group agreed there is a need for mentors to receive adequate training. An example of how training could be provided was given by one participant who explained "*training of mentors could use simulation, role play…the use of scenarios…*" Another participant suggested this could be supported by "*…having experts…successful people come in to share their experiences, past experiences on mentoring…*" Another comment mentioned the need for "*on-going training*".

Time and resources.

Mentors need support from their institutional systems and services. One participant explained this as "*having time to do it…having backing from the University to do it…*" Another participant added: "*having private rooms and safe spaces where mentoring can take place…if the mentor is sharing an office…a need to book a room...*".

Engagement and recognition.

Engagement and recognition was listed as important for mentors who are considering or have committed to engagement in a formal mentoring programme. This activity takes time away from other academic tasks and commitments. As one participant concluded "*…mentors need recognition for doing it…some don't bother as they think they might as well be writing a paper*".

Support services.

Students may need pastoral care and therefore support services should be available and accessible. One participant commented "*You need to know that you can refer…need to know how to refer and where to refer*". Another participant's comment focused on the quality of

services available: *"…sometimes I don't refer students because I know that the services may not meet the needs of the mentee…"*

Matching of mentees with mentors.

Matching mentors and mentees can include specialism, areas of interest or other areas of common ground. One participant gave an example of specific local criteria, noting that *"…in our University Welsh-speaking mentees are matched to Welsh-speaking mentors."*

Modelling.

Modelling, was elaborated by one participant who stated: "*Mentees observe modelling by seeing how the mentor behaves, works... can see how the mentor interacts with patients…in the practice of role modelling*".

Stability of the relationship.

A mentor-mentee relationship is a dynamic one, which develops over time. Students, therefore, need regular meetings with their mentors. As one participant highlighted "*every time you meet your student you are building up the relationship*...". In a similar fashion, another participant noted: "*we need longitudinal follow-up…those that are lost to follow-up…which reflects the stability of the relationship*".

4.   Discussion.

The results presented can inform educational faculty in the health sciences who wish to establish a formal mentoring programme. The most important recommendations relate to governance of mentoring programmes (purpose for the programme, quality assurance and provision of an operational manager). The next three elements relate to the mentor, with a focus on encouraging and supporting their engagement (training, time, and resources). The final four elements relate to the needs of the mentee that can be met either through the mentoring programme or through additional supports within the school and institution (support services, matching, modelling and stability of the relationship).

The group's most important recommendation is a clear, specific and defined purpose for a mentoring programme. This may reflect the variance in the literature about the aim and scope

of mentoring. Mentoring programmes have been described as providing personal support and career advice, promoting academic performance, meeting psychological needs, promoting interest in research, fostering support in specialties and developing professionalism and personal growth (Aagaard & Hauer, 2003; Frei, Stamm & Buddenberg-Fischer, 2010; Fallatah et al., 2018; Dimitriadis et al., 2012). It is, therefore, important to have a written policy that provides clear and transparent guidance on the aims, scope and parameters of a school's mentoring programme. In addition, the results of this study recommend a robust system of quality assurance and an operational manager guiding implementation of the programme. The operational manager is needed to manage the whole system and support mentors and mentees, a recommendation that is not prevalent in the literature published to date. We believe an operational manager is a key resource essential for the success of formal mentoring programmes.

Participants considered a range of mechanisms to support quality assurance within mentoring programmes, including attendance records, a policy on confidentiality, scheduling of meetings and policies to safeguard both mentor and mentee. The clear establishment of boundaries has been reported as particularly relevant in other studies as the relationship is closer than other relationships e.g. lecturer–student relationships (Rose et al., 2005).

High performing students have been found to be more likely, and poorer performing students less likely, to participate in mentoring programmes (Dimitriadis et al., 2012). Monitoring of student engagement provides the opportunity for targeted communication to encourage increased attendance and engagement of those students who likely have a greater need for support and guidance as they progress through their undergraduate training. Feedback and evaluation by mentors and mentees are also advised to ensure ongoing quality of the programme with a recommendation that this be completed 3-4 times a year (Ramani et al., 2006). Findings presented here support this and the authors believe evaluation of both the process and content of a mentoring programme can help stakeholders understand the perceptions and experiences of mentors and mentees and guide quality improvement initiatives.

For mentors the need for training, time and resources, and recognition of their contribution to student mentoring is reported in various studies (Aagaard & Hauer, 2003; Ramani et al., 2006;

Frei et al., 2010; Meinel et al., 2011). Ramani et al. (2006) advocated that the value of mentoring should be raised at senior faculty level and that all academics should participate in mentoring their students. Other forms of recognition for the work of mentoring suggested in the literature include financial remuneration, reduced teaching obligations or funding for academic training or conference attendance (Ramani et al., 2006; Meinel et al., 2011). This suggests planners of mentoring programmes may need to give consideration to mentors' needs that extends beyond training and consider incentives to promote engagement (Frei et al., 2010). Research on how, or indeed if, mentorship supports professional recognition, improves productivity or if the mentee can contribute to the work of the mentor, is lacking at this time. If positive findings are reported, they could be employed to encourage greater engagement by mentors in the process.

Ramani et al. (2006) suggest that matching mentors with mentees should not be mandatory but available for students who desire this, whereby matching criteria can include professional and personal interests, gender and cultural factors and/or language. Others acknowledge that matching can be a challenging process as academics may only meet students in large numbers in short courses and students can have difficulties in approaching busy academics (Frei et al., 2010). By offering a matching process, a mentoring programme can address this challenge, and through programme evaluation, incremental improvements in the matching process could be achieved, supporting the stability of the relationship.

Chia et al. (2020) conducted a systematic scoping review on the roles of host organisations in mentoring programmes in undergraduate and postgraduate medical training. The researchers report the characteristics of an effective organisation in supporting the mentoring programme - provision of consistent leadership, proactively supporting mentor and mentee, facilitation of all mentoring processes, evaluation of the mentoring programme and relationships within, and initiation of curricular reform to better meet the needs of mentors and mentees. Findings in this study are broadly in agreement with those of Chia and colleagues. For example, leadership is one of the roles of the operational manager. Mentor support, through training and induction, time and resources, and mentee support, through provision of support services and matching, are included in this study's recommendations. The finding of initiation of curricular reform to better meet the needs of mentors and mentees, was not raised during the NGT. The authors interpret this as a finding that has been identified from a broader base from the literature

during the systematic scoping review process, which contrasts with findings here when reporting on recommendations reached by a small group of participants with experience and knowledge in mentoring programmes. The authors believe inclusion of the needs of mentees and mentors in curricular review processes has merit and can align mentoring programmes with curricular outcomes.

Evaluation of mentoring programmes, initially capturing student reactions and perceptions, and, later exploring how well (or not) the mentoring programme has supported the mentoring relationship and the personal and professional development of both mentee and mentor, will help clarify the value and benefits of mentoring programmes. Longer term outcomes, in particular mentee outcomes, such as adaptation of role-modelling behaviours and display of professional attributes in the clinical environment, could be measured to determine the effectiveness of participation in a school's mentoring programme. As a prerequisite a consensus statement on the outcomes of mentoring programmes in the undergraduate health sciences is needed to guide the development of standardised and validated tools to evaluate the effectiveness and impact of mentoring programmes.

5.   Limitations.

The research method employed in this study, NGT, was suitable in the setting of the Irish Network of Healthcare Educators' conference, but it is acknowledged that this method may have limited further exploration of ideas. Once the initial brainstorming is completed there is a lack of opportunity to explore additional ideas related to the nominal question. The small number of participants is also a limitation and therefore, the results may not be generalisable. At the same time, participants had relevant experience and knowledge of the topic and the results will be informative to those setting up or reviewing formal mentoring programmes. The authors acknowledge that the use of field notes is a limitation. Field notes cannot be '*replayed*' and do not capture as much detail as audio-recordings. However, their use was to define and report on elements rather than analyse content.

6.   Conclusion.

Student mentoring programmes have been found to be an indicator of a caring supportive

academic programme that can guide students through the hurdles of their academic journey and support their professional development. Recommendations fall within three overarching themes, which are governance, mentor supports and mentee supports. These recommendations relate to supporting the mentoring programme at both a systemic level and a practical level within healthcare educational institutions. Further research is needed to advance our understanding and provide an evidence-base for the design and implementation of mentoring programmes in the health sciences.

Declaration of Interest

The authors report no declarations of interest.

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