ORIGINAL ARTICLE

HOW A SURGEON'S APPROACH TO TEACHING AND THEIR BEHAVIOURS CAN INFLUENCE MEDICAL STUDENT DEVELOPMENT OF DESCRIPTIVE KNOWLEDGE

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SUMMARY

Background: Descriptive knowledge forms a large part of medical student learning and assessment. Little information is available on the behaviours of surgeons towards medical students and the effects on the student's development of knowledge. We aimed to identify the particular behaviours which either enhance or diminish students' development of descriptive knowledge in the surgical workplace.

Methods: Qualitative study. Purposive sampling of medical students using semi-structured interviews conducted through a phenomenological study design.

Results: Twelve medical students in Newcastle University were interviewed. Thematic analysis identified three emergent themes. Students felt that being actively involved in a supportive environment, where they could freely ask questions, encouraged their development of descriptive knowledge. This was helped further when surgeons took interest in a student's individual learning needs and tailored teaching to the individual. However, a negative atmosphere and the alienation of students made them feeling devalued and discouraged their development of descriptive knowledge.

Discussion: Behaviours that recognise medical students as novices in the surgical workplace and promote a supportive and relaxed informal environment can help to enhance their development of descriptive knowledge. These findings may help supervising surgeons reflect and modify their behaviours towards teaching medical students.

KEY WORDS: medical education teaching

BACKGROUND

Several studies have explored the influence of surgeons' behaviours towards postgraduate surgical trainees and workplace learning, much of which has focused on teaching in the operating theatre[1]. Little information exists on how surgeons' approach to teaching and behaviours impact medical students' learning and development, instead studies focus on improvement of practical and procedural skills, professionalism and communication [2]. Certain teaching behaviours towards medical students have remained unchanged over the years in the surgical profession, perhaps due to cultures of surgical education involving assertion of hierarchy and humiliation [3].

Descriptive knowledge [4] forms a large part of undergraduate medical student learning and assessment. This knowledge can be defined as 'pure recall' of specific isolated pieces of factual information, definitions or terminology. To our knowledge, no studies have examined the behaviours of surgeons and their influence on the development of descriptive knowledge among medical students. This study aimed to identify behaviours defined as a range of actions, talk and mannerisms shown by surgeons of higher specialty training grade or above which are considered by medical students to influence development of descriptive knowledge.

METHODS

The study was designed to address two key research questions as follows:

1. What type of behaviours shown by surgeons is identified by medical students to influence their development of descriptive knowledge?
2. How can the behaviour of surgeons influence the development of medical students' descriptive knowledge?

A qualitative study using a phenomenological study design involving medical students was conducted using semi-structured interviews. An interpretative approach was used to identify and explore the issues involved to provide the depth needed for the study. Interviews were chosen over focus groups as it was felt that revealing stories, par-

ticularly of a negative nature to a group may result in respondents either generalising experiences, or a reluctance to share in front of their peers[5]. A pilot interview was undertaken allowing refinement of interview questions to facilitate deeper understanding of research questions.

SAMPLING AND RECRUITMENT

Ethical approval for this study was obtained from Newcastle University Ethics Committee. Participant confidentiality was maintained throughout. Students who had a minimum of six weeks experience of a surgical placement, including exposure to theatres, wards and clinics, under surgeon supervision were approached. Maximum variation sampling ensured a wide range of participants of varying ages, social and ethnic backgrounds.

Data Collection and analysis

Interviews were conducted by SSS and were tape-recorded, transcribed and anonymised. Data saturation was achieved after 12 interviews. Theoretical thematic analysis was applied in an iterative process following an informed stepwise approach[6].

RESULTS

12 students (6 male; aged 23 – 28 years) were purposively sampled and interviewed. Data collection continued until no new themes were identified. Thematic coding analysis identified seventeen sub-themes, merged together to generate three emergent themes; assimilation of medical students into the new workplace, motivation and strategies to further knowledge, and understanding.

Research question 1.

Absence of interaction from the surgeon left students feeling less able to cope and at times feeling resentful. Despite this, students were able to recognise that the pressures of the workplace can result in the surgeon's compromised communication and teaching. This could be due to the surgeon focusing on an operation or working through a busy clinic.

"If I asked more than 2 questions he'd start to get more … in a hurry and not be able to ask me questions because he was busy"

However, when surgeon complimented a student, the student felt more *"comfortable"* in the workplace enhancing their learning experience.

When surgeons created an environment that encouraged two-way dialogue, this was perceived to deepen student understanding.

"It was a chat, I could ask questions to him without him getting offended meaning I was constantly learning!"

Research question 2

After introduction to the wider surgical team, students felt more at ease as a legitimate and valued member of the team.

"I think when someone shakes your hand, it's … acknowledgement that you're his colleague rather than his inferior…he's willing to listen and teach you".

Students also expressed how the workplace should not always be an *"exam"* setting, feeling that learning occurs through more informal teaching.

"There's no point being tested all the time if you're never taught"

Furthermore, some students considered themselves in a more *"relaxed learning environment"*, if the surgeon began *"joking"* with the student and approaching teaching in a "conversation-style". However, surgeon's tone of voice and manner could also have a negative influence.

"When they know you're a student it's like … "oh another one" … you don't wanna (sic.) feel like you're in the way"

Students identified emotional responses to learning experiences encountered in the workplace. A positive learning experience could mean future revision of the topic would seem more welcoming whereas a negative experience could build a "mental block", putting off learning about the topic as much as possible.

DISCUSSION

Our findings suggest medical students prefer surgeons to create a relaxed learning environment, be enthusiastic about teaching and appropriately introduce students to other members of the team. In the absence of this, students expressed frustration and alienation, demonstrating that a surgeon's acceptance and trust is important to make them feel valued, promote learning and to form satisfactory professional relationships. Through appropriate introductions, some medical students felt more involved in patient care and with the surgical team. In contrast to trainee surgeons' preferences of learning [1], students prefer behaviours which *"legitimise their inclusion in the surgical team and their role as a learner"*[7]. These expressions of feelings illustrate how the surgeon is, to some extent, responsible for setting the learning climate, to foster the development of descriptive knowledge[7].

We illustrate the inexperience of medical student in the surgical workplace and the need for orientation[8], whilst also demonstrating how an established student-surgeon relationship can facilitate the development of descriptive knowledge with surgeon allowing the students' 'familiarisation process'[8] to occur. Such a relationship fosters mutual respect to instill a higher student self-efficacy, and thus promoting fulfilment in the workplace and positive development of descriptive knowledge.

Anxiety from some medical students appears to make them feel embarrassed or under pressure. When students were put at ease, learning descriptive knowledge seemed easier and inviting. A friendly approach to teaching allows

students to ask questions freely enabling them to become active in learning descriptive knowledge.

Some medical students expressed how surgeons' behaviours were perceived to motivate them to pursue further reading outside of the workplace environment. Our findings show how this motivation can also be *"extrinsic"*, rather than simply student driven, i.e. - when students are signposted or when learning is related to student learning outcomes. The development of descriptive knowledge in this case, can be susceptible to certain conditions that either sustain or diminish this innate desire[9].

Surgeons who adapted their delivery of descriptive knowledge towards students' future career intentions and involved real cases[8] were seen to exercise *"relatedness,"*[9] an important factor in sustaining internal motivation to explore more about the topic in question. This is needed to address the discrepancy between what the surgeon feels is important to teach and what the student would like to learn.

Step-by-step explanations before and during operations were perceived to be useful in orientating students throughout the operation, providing opportunities to ask relevant questions. Previous research[7] agrees that ongoing commentary during the operation is a useful teaching technique for medical students and recognised the feasibility of this approach which can *"activate"* descriptive knowledge learning. This didactic approach to teaching has been shown to be important in the workplace[10], with high student satisfaction and *"educational value"* [10]. Theatre can therefore be seen as a good environment for students to showcase and develop descriptive knowledge such as anatomy, physiology and pathophysiology.

Open questions allowed students to demonstrate their breadth of knowledge whereas closed, quick-fire questions inhibited this. The phenomena of 'pimping' in medical education is thought to contribute to student mistreatment in the workplace[3]. Medical students and core trainees have voiced the need for surgeons to provide *"positive and constructive criticism"* without destroying confidence[1, 10].

The responsibility to see patients in clinic or assist in the operating theatre meant some students felt integrated within the surgical team. In doing so, students had autonomy to manipulate teaching and learning to their preferences.

The study was limited to one medical school in the United Kingdom and therefore may not be representative of all medical students throughout the United Kingdom. Further studies may be required to explore behaviours from the surgeon's perspective, providing an understanding which takes into account the work pressures surgeons face in today's NHS.

This study reinforces the role of the medical student within the surgical workplace. It highlights students' limited experience of wards, clinics and operating theatres which requires the surgeon to provide them with guidance and an active role in the management of their learning. Whilst most surgeons are excellent teachers, some surgeons' behaviours can negatively influence student learning and can make students feel devalued. Better understanding of the influence of surgeons' behaviours upon medical students could aid surgeons in evaluating their teaching practices.

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