ORIGINAL RESEARCH

Stakeholder Participation and Cross-Sectoral Cooperation in a Quality Circle on Community-Based Teaching: Results of a Qualitative Interview Study

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Introduction: Community-based learning in family medicine practices is an increasingly important part of the medical curriculum internationally. It is widely regarded as one solution to healthcare system needs, such as training and retaining a workforce willing to work in primary care. However, the perspectives of community-based medical educators and representatives from university-based medical education are rarely integrated. To improve teaching quality and promote exchange between those two sectors of medical education, the Institute for General Practice and Interprofessional Care at Tübingen University started a quality circle in family medicine teaching involving stakeholders from both sectors in 2018. The study aims to describe how the participants of this specific QC describe the cross-sectoral cooperation and participation of stakeholders in the quality management of community and university medical education.

Methods: After an observed meeting of the quality circle, semi-structured interviews were conducted with n=12 participants of the quality circle. Interview transcripts were analyzed using grounded theory.

Results: According to the participants, the quality circle provides a dynamic continuity which allows participants to navigate known barriers to transsectoral collaboration in the quality management of community-based medical education. The quality circle is perceived as an instrument for quality improvement that offered continuity and direction. At the same time, it allows for enough freedom and flexibility for the involved stakeholders to creatively work together on quality management and be inspired by their experiences.

Discussion: The quality circle has the potential to facilitate collaboration between the two teaching settings, form a creative community, and give medical students an active role in educational quality management.

Keywords: quality circle, quality management, community-based teaching, family medicine, cross-sectional, qualitative research

Introduction

Teaching in family medicine mainly takes place in two sectors: at the university in the form of lectures or seminars and in community-based learning environments, such as community health centers or general medicine teaching practices.[1–3] Medical teaching outside of the university is referred to as "decentral" or community-oriented medical education (COME), with the latter highlighting that community needs are central to the planning and execution of the medical curriculum.[1,3–5] The terms community-based learning (CBL) and community-based medical education (CBE) are often used exchangeably. Important aspects of the implementation of CBL in existing (often purely university-based) curricula are its longitudinal character and the moderation between said university- and community-based sectors.[6–9]

COME has been implemented in developing countries and in developed countries to ensure a competent healthcare workforce willing to work in community settings.[7] In developing countries, the presence of medical students in rural areas is vital to improving the distribution of health care and counteract the cross-border drain of medical competency.[8,10,11] In

developed countries, an increasing shortage of GPs, the perceived low status of outpatient care and GP medicine, and the tendency of health systems towards more centralized and specialized health care are reasons for implementing COME.[6,8,12–15]

Program evaluations show that COME provides a range of benefits for stakeholders but also places special demands on medical education. Benefits include improved community health care, opportunities for medical students to learn about the respective communities, and motivation of local health care workers to pass on their knowledge to the next generation.[2,7,9,12,14,16–20] Challenges in managing educational quality in CBL include balancing health care service with teaching demands, students' travel costs and expenditures, feeling isolated in one's work and learning, the heterogeneity within the sector, and stakeholder collaboration.[3,11,14,16,18,21–28]

COME has been shown to improve collaboration between stakeholders and, potentially, increase interest in community health care.[7,20] It also risks suffering from a lack of exchange between university and community.[8,16] Medical students and teaching coordinators (those who plan and organize COME) perceive this gap most notably as the different perspectives of each sector's stakeholders (community representatives, community-based educators, students, university-based medical and administrative staff, university-based educators) are rarely integrated.[8,13,29]

In such a complex scenario, teaching quality is difficult to define, and the definition may vary depending on each stakeholder's unique perspective.[8,30–33] Existing approaches to evaluating and managing the quality of COME involve some degree of stakeholder participation.[2,19,21,33,34] Integrating student perspectives particularly adds value to organizational QM efforts and improves student competencies in QM as part of their ongoing professionalization.[35–40] Appropriate methods to improve stakeholder participation and collaboration across sectors in curricular QM are needed.[3,8,19,33,34]

One way of incorporating quality assurance via a participatory approach is through quality circles (QC). The idea of quality circles can be traced to the work of Ishikawa and the Japanese Union of Scientists and Engineers in total quality management (TQM).[41,42] According to Ishikawa, Quality Circles are small groups of workers in the same workshop within the same organization that regularly contribute to all aspects of quality control and continuous quality improvement.[42] Several concepts of continuous improvement in industrial QM were derived from this groundwork, such as Deming's Plan Do Study Act Circle.[43] The concept of QC as participatory meetings near the workplace has been applied successfully to the educational sector, including medical studies.[35,44] A benefit of any QC is that participants are actively involved in continuous QM efforts.[44–46] In COME, "peer support groups" or "teaching circles" were introduced as QM measures, but not scientifically evaluated.[47,48]

In German community-based outpatient health care, family medicine QCs have been an established tool for over 30 years and may provide a template for cross-sectional QCs in medical education.[49] Similar to "communities of practice", such outpatient care QCs are organized locally by community-based medical professionals to share experiences and to advance health care in the community.[50] QCs have shown benefits for patients, healthcare teams, and institutions.[49,51]

Inspired by these efforts and due to the missing integration of different perspectives in family medicine teaching, the Institute of General Practice and Interprofessional Care of Tübingen University started a QC on teaching in family medicine in 2018. This QC comprised different stakeholders of university-based and community-based teaching, aiming to integrate the traditional concept of goal-driven QC in organizational and industrial QM with the existing participatory family medicine QCs in German outpatient care.

The study describes how the participants of this specific QC describe the transsectoral cooperation and participation of stakeholders in the quality management of community and university medical education. A theoretical model of the function and structure of QC will be derived from their experiences.

Method

The study was conducted between October 16th, 2019 and November 15th, 2019 as a qualitative interview study following the constructivist paradigm. Results and methods are reported adhering to the SRQR statement.[52]

Setting

The department of family medicine at Tübingen University has around 250 community-based GP teaching practices. They are in communities within a radius of 70 km around the city of Tübingen. Often, teaching practices from the same community attend the same local outpatient QC where they discuss medical or billing issues and tasks relevant to the

community they practice in, hence the concept of QC is known to them. Approximately 160 students per semester attend the family medicine clerkship in these practices during their fourth study year. Their exposure to QM in the curriculum is limited to the evaluation of classes.

Since 2018, the QC on family medicine teaching has met bi-annually at the Institute of General Practice and Interprofessional Care of Tübingen University. It consists of different stakeholders from university-based and community-based teaching. Its meeting structure is outlined in Table 1.

Study Design and Data Collection

Recruitment of participants was conducted as follows: The study idea and aim were presented at a QC meeting. The number of participants for the interviews was limited by the number of participants in the QC (n=13, including MTS). MTS observed that meeting and took notes of its process, structure, and content. Because MTS was going to be leading the interviews, she was excluded from the study as a participant. After the observed meeting, MTS approached the participants personally and informed them about the study and interview setting. All possible interview partners (n=12, 100%), agreed to participate in the study. The interviews were scheduled in the eight weeks following the meeting.

A semi-structured interview guideline (see Supplement 1) was developed by MTS and RK based on MTS' observations of the QC meeting and RK's experience as its moderator. After giving informed consent, participants were interviewed individually, either in person or via telephone. The first interview was performed with RK as a pilot interview. It was evaluated among the author team relating to MTS' interview style and the interview guideline, leading to minor changes in the interview guideline. This version of the guideline was then used in all following interviews. The interview questions explored attitudes, process descriptions, and experiences of the participants of the QC's structure, functioning, and their observed impact of the QC on themselves as participants and on family medicine teaching at the university and the community level. The interviews were recorded using a digital audio recorder (Tascam DR-22WN) and transcribed verbatim. Names and places were depersonalized using pseudonyms.

While repeat interviews were planned initially, the transcripts revealed a thematic saturation after ten interviews concerning process descriptions of the QC. Therefore, no repeat interviews were performed.

The Research Team and Reflexivity

The background of each author is briefly outlined to illustrate the influence of each person on the research process:[53] MTS is a physician-in-training. At the time of the interviews, she was a medical student. She joined the QC in 2019. Her background as a medical student led to a familiarity with the student participants interviewed. At the same time, she had a lower level of familiarity with the teaching physicians interviewed. RK is a GP and teaching coordinator, founder of the QC, and its moderator. As teaching coordinator, RK is responsible for the COMEs at Tübingen University, its management, and didactic setup. His prominent role in the QC led to his interview being selected as the pilot interview but analyzed last to reduce self-report bias. SJ is a general practitioner, chair of family medicine, and head of the department. As such, she is responsible for family medicine teaching at the university and represents family medicine at the

Table 1 Meeting Structure of the Quality Circle on Teaching in Family Medicine at Tübingen University

Check-in	Everyone briefly introduces themselves and describes their thoughts and expectations for the current session.
Presentation of agenda	Presentation of the meeting schedule. One person is appointed to write a protocol and another person to keep track of time at each meeting.
Input and Discussion	Participants alternate between content input and discussion.
Summary	The results are recorded.
Next QC and work assignments	Participants jointly determine the next meeting appointment. Work assignments are distributed among the participants. The results of the assignments will be presented as input in the next meeting.
Check-out	Everyone can express their closing thoughts and "take home" messages.

university. She participated in the QC twice in 2018. As the three authors had also participated in the QC and had an overall positive attitude towards the QC and the work of the QC, self-report bias was anticipated in the analysis. It is addressed in the following section and further discussed in the strengths and limitations section.

Data Analysis

The transcripts were analyzed using MAXQDA Software (VERBI Software GmbH, Berlin). Grounded theory was used as the analysis method. Grounded theory is a qualitative research method that examines the processes underlying a phenomenon of interest. The analysis was performed in three consecutive steps, as proposed by Strauss and Corbin.[54]

First, the transcripts were read thoroughly to get acquainted with the material. Next ensued a process that is called open coding: By making comparisons and asking questions (eg, "How do participants' different experiences contribute to shared expertise?"), the transcripts were broken down into small units of meaning. These units of meaning were clustered and then abstracted into main- and subcategories. The characteristics and dimensions of the main categories were mapped out in the form of memos. It allowed a conceptualization and an alignment of recurring topics and themes. To gain a high-quality and dense model, all interviews were double-coded. The three transcripts after the pilot interview were double-coded by MTS and RK as described above, followed by a discussion in which a consensus coding frame was established. The remaining nine interviews were double-coded by MTS after a pause of at least three weeks using this coding frame. The pilot interview was coded and analyzed last. No excerpts from the pilot interview were included in this manuscript.

The next step comprised the intercorrelation between categories and the description of phenomena using a coding paradigm composed of conditions, context, action/interactional strategy, and consequence (axial coding).

The last part of the analysis was selective coding. The aim was to link the phenomena into a core variable that maps the central motifs and patterns in the material.

By analytical induction within the framework of grounded theory, a model close to the subjectively perceived reality of the participants was to be generated. For this purpose, a preliminary model was created, which was continuously iterated during the analysis. If aspects were found to which this preliminary model did not apply, it was modified and differentiated on the interview material until all cases from the study could be integrated.[55] This point marked theoretical saturation. It was achieved at ten interview transcripts, after which no new insights emerged and further analysis yielded no additional detail to the model. To improve the quality of the research process, constant comparison[56] was carried out. This included readjusting codes from analysis step 1 (open coding) as needed during selective coding.

As all three authors participated in the QC and two of them were interviewed as part of the study, the risk of self-report bias had to be taken into account. Due to the positive attitude of all three authors towards the QC, an assessment of the QC (in terms of whether it is "good" or "bad") was excluded from the analysis. Instead, the focus was on the systematic nature and functioning of the QC. In addition, during the research process, the interim results were presented and discussed several times in an external interprofessional research workshop group for qualitative methods. This workshop is a recurring event at Tübingen University that is moderated by a sociologist and qualitative methods expert. Attendees to the workshop include several disciplines such as health care sciences, medicine, nursing sciences, sociology, and psychology. None of the attendees were associated with or involved in the present study.

The results were also presented at two national family medicine congresses and discussed in the context of a peer review. Participants in the peer review included other course coordinators, GP teachers, and medical students.

Results were also presented to the participants of the QC 2019 in the context of a member check. In their review of the theoretical model, QC members confirmed that it mirrored the collaborative process within the QC. They additionally made suggestions as to how to best present it to a wider audience.

Ethics

The ethics review board of Tübingen University gave a positive vote on the study (021/2019BO2). The declaration of Helsinki was followed throughout the study process.[57] The participants' informed consent included publication of anonymized responses.

Results
The interview length ranged from 10 to 26 minutes, with an average length of 20 minutes. The following Table 2 lists the QC participants' age, gender, and profession:

Open Coding
A category system was developed in the open coding. It is presented in Table 3 below. The main categories were "multi-perspective exchange", "aim and function of the QC" and "schedule of a session". The topic of the session was "digitalisation in GP teaching". It is not covered in this manuscript.

Axial Coding
Four phenomena were found in the axial coding: "participation of individuals in the QC", "the dynamics of the QC session", "the continuous work of the QC", and "the subjective impact of the QC". These will be described below. Participants will be indicated by P_XX, which reads as "participant interview number XX":

Participation of the Individual in the Quality Circle
Each QC participant acted as a stakeholder of his or her respective unique setting (eg, GPs of community-based teaching, students of the medical student body, course administrators of university-based teaching and administrative processes).

> P_11: I joined the quality circle mainly to represent the general student body. And I just try to bring in a lot through friends and contacts, what the general mood is regarding certain teaching formats. For example, when it comes to the family medicine clerkship, what kind of mood, voices come from the student body, and what the general attitude is towards family medicine teaching. (P_11_19, item 18)

In addition, each participant contributed to the QC's work with their personalities, experiences, skills, and unique perspectives. Individual skills and experiences contributed to the contents of the QC session but so did the function of being a stakeholder. Especially the students' perspective was appreciated.

Table 2 Characteristics of the Participants

Category	Item	n (%)
Gender	Female	9 (75%)
	Male	3 (25%)
Age (year)	20–30	3 (25%)
	30–40	3 (25%)
	40–50	2 (17%)
	50–60	4 (33%)
Profession	Medical students	3 (25%)
	GP trainers	3 (25%)
	Course managers/ administrators	3 (25%)
	Practicing nurse and nurse scientist	1 (8.33%)
	Educator and medical didactics expert	1 (8.33%)
	Physician in training (Resident)	1 (8.33%)

Table 3 Categories (Open Coding)

Over-Arching Categories/Main Categories	Categories	Subcategories
1 Multi-perspective exchange	1.1 Participants' quality management (QM) experiences	1.1.1 None
		1.1.2 Experiences from advanced training
		1.1.3 Experiences from the quality circle (QC)
		1.1.4 Experiences/Problems of other universities
		1.1.5 Experiences with QM in other fields
	1.2 Composition changes	
	1.3 Multi-perspective exchange adds value to QC's work	
	1.4 Collaboration	1.4.1 Atmosphere
		1.4.2 Relationship- and group dynamics in the QC
		1.4.3 Exchange with each other
	1.5 Perspectives	1.5.1 Medical didactics
		1.5.2 Health Sciences researcher
		1.5.3 Bringing in perspectives
		1.5.4 Head of the department
		1.5.5 Students
		1.5.6 Teaching administrator
		1.5.7 Doctor-in-training
		1.5.8 Teaching coordinator
		1.5.9 QC Moderator
		1.5.10 General practitioner educator
	1.6 intrapersonal role conflict	1.6.1 proposed solution
2 Aim and function of the QC	2.1 Indicators for success	
	2.2 QM is complex	
	2.3 Factors for a successful session	2.3.1 Moderation
		2.3.2 Collaboration
		2.3.3 Atmosphere/Motivation
		2.3.4 Recording the results
		2.3.5 Sticking to the structure
		2.3.6 Openness
		2.3.7 Defined aim
		2.3.8 Sessions must be prepared thoroughly
	2.4 Content alignment with courses	

(*Continued*)

Table 3 (Continued).

Over-Arching Categories/Main Categories	Categories	Subcategories
	2.5 Reflection	2.5.1 Reflection is necessary
		2.5.2 Reflection about QC/Evaluation
		2.5.3 Self-reflection
	2.6 There is a result	2.6.1 Strengthening the decisions
		2.6.2 Improving the communication
		2.6.3 Exchange of information
		2.6.4 Personal result for the participants
		2.6.5 Legitimation
		2.6.6 Realisation of the QC's result
	2.7 Long-term aims	
	2.8 Application to other fields/departments	
3 Schedule of a session	3.1 No breaks	
	3.2 Structure and Rules	3.2.1 Fixed structure
		3.2.2 Meeting time
		3.2.3 Consciously chosen structure
		3.2.4 Changes in the structure
		3.2.5 Distribution of tasks in a session (Time keeper and protocol)
	3.3 Round of introductions	
	3.4 Check-In	
	3.5 Input at the beginning	
	3.6 Discussion	3.6.1 Multiple topics are discussed
	3.7 Recording the results	
	3.8 Determining work assignments	
	3.9 Determining the topic of the next session	
	3.10 Check-Out	
	3.11 In between the sessions	3.11.1 Too few sessions
		3.11.2 Work of the teaching-team
		3.11.3 Announcement of the next session
		3.11.4 Preparation and reading of the protocol
		3.11.5 Completing work assignments
		3.11.6 Unscheduled topics

Abbreviations: QM, Quality Management; QC, Quality Circle; GP, General Practitioner.

P_04: It is important that you have people from different areas of teaching, … not only teaching physicians (…) or us from the institute talking in the meeting, but that the different perspectives are involved. And also the students, because (…) a teaching quality circle makes no sense if there are no students.

The Dynamic of a Quality Circle Session

Participants were united in their interest in improving family medicine teaching at the university. Participants also described dynamic group processes, such as negotiations, discussions, information, and idea assessment. These group dynamics allowed for creative workflows. Above all, they highlighted the appreciation and validation of ideas about community-based education. Thanks to an overall positive atmosphere and a mutually agreed-upon goal of improving teaching quality, there was space for reflection and collaboration. This multi-perspective collaboration was named an enabler for constructive work on the multifaceted topics in the QM of family medicine education. Both stakeholder perspectives and individual experiences were weighed in the discussions and the exchange.

P_08: It makes absolute sense that the perspectives cover as broadly as possible what is relevant for the quality in the teaching of general practice.

The Continuous Work of the Quality Circle

Between sessions, participants acted as an extension of the quality circle in their respective settings – eg, community-based teaching practice, university-based processes or groups of students and their representative bodies. They incorporated parts of the discussed topics in their work, tried new ideas, and validated them on a local level. Additionally, they could take open questions from the discussions that could best be answered in their context and gather opinions for the next quality circle session, as one medical student participant reported:

P_11: [.] it totally depends on what the topic of the session was. [.] So we have already done the survey on the topic of the family medicine clerkship. In the last sessions, it was more the task of teaching physicians to collect information or ideas. (…) So usually, (…) you go out with a task and then you work on it between the sessions. (T_11_19, item 24)

Participants elaborated that acting at their local level or interacting with their respective stakeholder groups led to new individual experiences. Participants reported incorporating these new experiences and results in the next QC session. The group collaboration continued based on this input. Thus, a continuous process was created. It influenced the participants personally. The frequently recurring sessions acted as exchange and validation points for these individual working phases and experiences made therein.

P_04: In the intermediate phases, the normal work happens, so we all continue to work on our projects and we try to take the aspects [from the QC] into it as well.

In addition to individual experiences, the meeting created an interface for representatives of teaching environments and settings or regions that would have little exchange without the QC. It allowed participants to build interpersonal relationships and work together on issues.

P_07: Outside the quality circle there is little or no contact, except sometimes on a bilateral level. Since this quality circle exists, a trusting relationship has become possible.

The Subjective Impact of the Quality Circle

Self-reflection was encouraged during each session. During the interviews, participants also reflected on the work of the QC. Participants remarked that the potential impact of the QC is difficult to measure. Still, they were optimistic that the QC's continued existence was one important outcome. In general, participants described their experiences with the QC as positive and recognized a value added to their personal development and their work in the context of teaching. The students mentioned a subjective improvement such as better understanding and more engagement in organizational aspects of teaching. All participants would recommend the QC model to other fields.

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P_05: Well, I see an effect for me personally, because many of the things that were not really clear to me as a teaching doctor, e.g., why I should actually do them or how I should do them, have now become much clearer and I always try to implement the QC's work in my practice.

Selective Coding: The Dynamic Continuity of the QC

The above four phenomena were included in the core variable „dynamic continuity". It represents a model of the functioning of the QC based on the participants' descriptions of working processes and experiences. It integrates the dynamic interaction between participants and the impact of the continuous work of the QC on individuals, the teaching organization, and community-based teaching locations.

The collaboration between participants relates to current topics in teaching and the organizational QM process, generating concrete steps toward improvement:

P_09: […] there has already been a lot of potential in the collaboration. Especially when I missed a meeting and then returned, I clearly noticed that steps are simply being taken, there had been advancements which were very fruitful and positive, also for family medicine teaching.

During the meetings, personal reflection processes are initiated, which relate to the teaching organization and teaching processes both at the university and in community-based education.

P_08: […]it has a direct effect - first, on all people involved […] and by giving people a different perspective. That, in turn, has a direct effect on what happens in teaching.

Through the multi-perspective exchange, boundaries are overcome that are inherent to the organizational QM of teaching environments in different healthcare sectors.

P_02: […] we bring all those involved to one table because we always have this three-way relationship in principle, where you always only communicate via proxy. These three perspectives of the institute, the GP trainer and the student come together at one table, so to speak, and thus, I think that is an enormous benefit and yes, that is, for me, that is why, let me say, there is no format where that has been the case so far.

Operating in the QC, both individually and collectively in the group, generates and validates new approaches, allowing organizational and personal growth:

P_10: Perhaps because I've been here for so long, it's very important for me to reflect on the processes. I realize: 'Okay, you've never had that idea before' and I'm grateful for that.

Through the implementation of solutions both individually and in the teaching organization between QC sessions, the participants initiate change processes.

P_03: Well, it was another huge input for me in terms of quality assurance in teaching, because I also got my classes reflected in a completely different way.

The fact that the QC persisted despite exterior challenges and interior dynamics might indicate one of its accomplishments: it managed to maintain stability without becoming rigid, and flexibility without being fickle.

P_08: And I think that anyone who would recognize that this is wasted time, they wouldn't come again. So the indicator that it is well prepared and executed is, so I think, that there is a continuity there.

In summary, the QC works according to the motto, "we derive strength from our differences and support each other by sharing commonalities". The participants come from local fields of activity (eg, a physician in community-based teaching in general practice). They bring concrete experiences from their fields of activity. In the QC, these experiences are shared, compiled collaboratively, and abstracted in the context of a mutually agreed-upon goal to improve teaching quality in family medicine. The QC provides a focal point of different types of knowledge and experience relevant for decentrally organized, community-based teaching: university stakeholders know about organizational processes, legal boundaries as provided by the medical
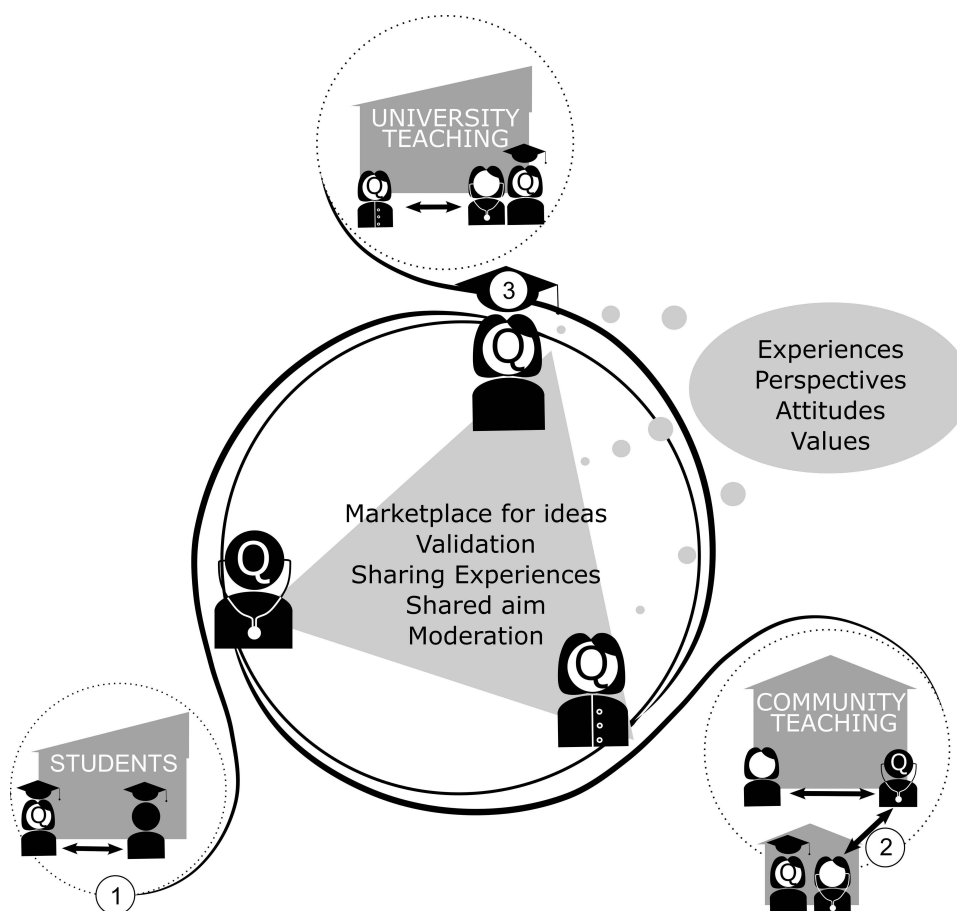
Figure 1 Theoretical model of the Tübingen quality circle on family medicine teaching. 1 Quality Circle participants (marked "Q" in the figure) alternate between their usual context/workshop and the Quality Circle. 2 QC participants share information with their local workplace context and also with workplaces linked to that local context (eg other GP practices in the same region) 3 Medical students (marked with a doctor's hat) have access to most contexts because of their curriculum and teaching events.

licensure act, and curricular framework conditions. Students provide insights into learning needs and opinions, and GPs contribute to the collaboration with community needs. The common objective gives direction both to the discussion and the work of the QC as a steering element of an organization (eg, the coordination of COME) and to change processes in community-based teaching, initiated by participants such as GP trainers after returning to their local context. The sessions' structural elements provide a framework that enables and supports the described "dynamic continuity" in the field of tension between external influences (eg, changed framework conditions) and internal dynamics (eg, group dynamics, new additions, acute issues). The continuity of the process itself, returning participants, and the ensuing establishment of working relationships between participants, the structure of the QM, and its moderation contributed to that 'safe space'.

Accordingly, the QC represents an overarching, stable but adaptable, spatial, and temporal connection element between community-based teaching, students, and the higher-level organization with the goal of quality improvement. The theoretical model derived from the material is shown in Figure 1.

Discussion

The evaluation of the interviews with different players in university and community-based teaching resulted in a multi-perspective description of QC as a collaborative interface between the two sectors of medical education. The collaborative process was described as a community for quality improvement that offered continuity and direction. At the same time, it allowed for enough freedom for the involved stakeholders to creatively work together on QM and be inspired by their experiences. Several facilitators of cross-sectoral cooperation were identified and are discussed below.

Facilitators of Cross-Sectoral Cooperation in the QC

Start a New Community Instead of Applying Traditional University QM Tools to COME

The QC is a self-directed QM "community of practice", similar to QC in German outpatient care.[47,49–51] Participants distinguished the sense of community in the quality circle from other bilateral QM contexts where they experienced communication between sectors as rather unidirectional ("top-down") from the university – a known barrier of the QM in COME.[8,16,29] A possible explanation lies in the heterogeneity of the sectors: while universities are geared towards teaching medical students, community-based teaching sites are primarily geared towards the provision of health care to the general public. They have differing values, clinical missions, and organizational features.[8,16] In contrast, the QC participants' reports indicate that integration of stakeholders from the two sectors into the quality management of teaching seems to succeed better in the context of forming a completely new, integrative multi-perspective community than with established QM tools such as outcome-based reports, formal evaluation, or audits.[7,14,27]

Provide Both a "Safe Space" and a High Degree of Freedom

Participants from both sectors reported benefitting from creative freedom and self-reliant work in their local context. At the same time, they also appreciated the centrally organized, structured, continuous, and sometimes rigorous process of recurring, moderated, and goal-oriented meetings. Presenters reported feeling safe enough within the fixed structure of the QC sessions to engage in discussions on potentially vulnerable topics, such as new concepts for teaching, or values associated with the "teaching culture" of a sector. Despite the sensitivity of the topics, they reported emerging from QC sessions inspired and empowered them to put their now- refined ideas into action. This underlines that teachers and students do not want to work and teach in isolation but be part of a community where they can engage in meaningful discussions.[14,16]

The Community Knows Best and Should Jointly Develop Aims for QM

Besides the structure and framework of the QC, mutually developed short-term and long-term goals help to give direction both for individual participants, and for the collaborative group process during the session, but also the QC as a steering element in the teaching organization.[42] This focus on "moving things together" instead of "controlling outcomes" is central to transformative quality management and provides an opportunity for the joint optimization of teaching performance.[30,31,38]

Empower Medical Students to Become Ambassadors of the Community

Participants from both sectors assigned medical students a central role in the QC, as they are able to transition between nearly all contexts affected by quality management efforts in family medicine teaching. They have the most vital perspective on CBL experiences, as has been demonstrated by several studies.[1,4,7,10,16–19] In practice, the use of this perspective is often limited to student evaluation of courses or student observation.[3,31,36] The medical students participating in the QC reported reaching out to their peers to validate the topics discussed in the QC. The QC thus empowers students to migrate from being "consumers" of medical education or a one-way information source in QM to an active and mobile part of the teaching community. This extends the QC's reach to other relevant stakeholder groups.[25,38,44,45] Medical students' description of what they learned about collaboration in the QC can be summarized as a case study in experientially learning interprofessional and intersectoral collaboration:[35,39,40] During QC sessions, medical students learned about the importance of stakeholder cooperation and regional needs, which are the main competency goals of COME.[6,7,9,10,14,20,35] Through this experience, students can become more active in their learning in COME and inspire other students to do the same.[19]

What are the Possible Contributions of a Quality Circle to Medical Education Quality Management Efforts?

From our point of view, the QC contributes to our QM efforts in COME at Tübingen University. As authors and, at the same time, participants of the QC and this study, recognition of potential bias prevents us from attempting to assess whether that contribution is successful or not. However, several facilitators for transsectoral collaborative QM in COME were identified and opposed to known barriers.[1,3,7,10,20] This potential is best described when assuming that QM is a transformative process as defined by Harvey and Green:[30]

The main contribution of the QC to COME's QM is to bridge a specific and so far unresolved challenge of cross-sectoral teaching: Getting community-based and university-based teaching representatives to form a QM community. The key lies not in merging one sector into the other but in creating a completely new community. This allows stakeholders of both sectors to collaboratively participate both in the direction, process, and content of QM in medical education.[8,29] The QC provides not just a platform for participation, but also empowerment of stakeholders, which is especially important for medical students as central figures in this context.[8,38] Because participants act as interfaces to their respective sectors, the QC could indeed be a QM tool suitable to specifically bridge known barriers to managing QM in COME.[32,41,42,46]

In this context, extending the work of the QC to more regions and stakeholder groups remains the biggest challenge. No QC could effectively harbor representatives of 250+ teaching practices, more students, and still provide dynamic continuity. To spread the ideas discussed in the QC, participating GP trainers currently act as multiplicators towards the colleagues in their community. They collect opinions and experiences on the situation in the community and then refer back ideas and concepts validated in the QC. The QCs that already exist for family medicine in communities could form a basis for scaling up the QC.[49] Additionally, course administration and course management could reach out to the practices by digital means or in GP training sessions.[3,29] Stakeholder representatives could act as "ambassadors" both in community-based settings and and at university to spread the idea of collaborative QM.[8,25] As the tasks of the students grow, some kind of compensation should be found for its participants.

We would thus like to propose our model as a possible extension to existing QM concepts on community-based teaching. Ultimately, the participative integration of both sectors could provide a platform to facilitate medical education transformations and adaptations to changes in healthcare needs on the individual and organizational level.[8,30,35,38–40,44–46,58]

Strengths and Limitations

Since a multi-perspective QC as a quality improvement tool in community-based medical education has not yet been scientifically described, it was important to choose a scientific method that would enable the formation of a comprehensive model. The resulting codes and phenomena were constantly tested on the material during the analysis to be able to fully represent the resulting model.[56]

The purposeful sampling had a very narrow focus (participants' experiences with the QC in Tübingen) to achieve sufficient information power according to Malterud.[59] This narrow focus affected the interview length, which is shorter than in comparable qualitative studies.[4,29,38] All study participants also were participants of the QC and thus prone to reporting bias – especially as two of the three authors of this study also were interview participants. We tried to minimize the impact of bias by pointing out where our results must be interpreted carefully as some of them are seen through the lens of people wanting the QC to succeed. At the same time, the present study offers authentic stakeholder experiences and descriptions of interfaces between different sectors affected by quality improvement in medical education.

Bearing the above limitations in mind, the description of the QC's function and systematic yielded a theoretical saturation and was attested credibility in several instances (peer check, member check, transdisciplinary methods workshop). While the result mainly applies to QCs in the context of family medicine teaching in Germany, the model has shown theoretical applicability by comparing it to established models on quality circles and QM frameworks.[42,50] Future research should empirically expand on these tests, critically assess the generalizability of the proposed model and further explore the dissemination of the QC's work in local contexts.

Conclusions

This study shows that the Tübingen quality circle as described by its participants offers a stable but adaptable collaborative workspace for the QM of both community-based and university-based medical education. Participants report individual benefits. Medical students are central to the QM of COME as they can transition between both sectors. The QC has the potential to be used as a specific tool to surpass known barriers in the transformative QM of COME if the question of how to scale its reach is answered.

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Disclosure

The authors report no conflicts of interest in this work.

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