Shaping a Culture for Continuous Quality Improvement in Undergraduate Medical Education

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Abstract

Purpose
This study sought to identify key features of an organizational quality culture and explore how these features contribute to continuous quality improvement of undergraduate medical education.

Method
Between July and December 2018, researchers from Maastricht University in the Netherlands conducted a multicenter focus group study among 6 education quality advisory committees. Participants were 22 faculty and 18 student representatives affiliated with 6 medical schools in the Netherlands. The group interviews focused on quality culture characteristics in relation to optimizing educational development, implementation, evaluation, and (further) improvement. Template analysis, a stepwise type of thematic analysis, was applied to analyze the data.

Results
Five main themes resembling quality culture constituents to continuous educational improvement were identified: (1) fostering an open systems perspective, (2) involving stakeholders in educational (re)design, (3) valuing teaching and learning, (4) navigating between ownership and accountability, and (5) building on integrative leadership to overcome tensions inherent in the first 4 themes. A supportive communication climate (which can be fueled by the organization’s leaders) contributes to considerable in quality management approaches, resulting in better insights in staff performance, further opportunities to signal topics for improvement, and more clearly defined responsibilities.3,4

CQI resembles a state in which schools take on the challenge to address different notions of educational quality in a methodical manner. Depending on the perspective of a stakeholder, educational quality can be understood as fitness for purpose (educating capable future physicians), value for money (a return on investment in education), perfection (focusing on zero defects), exceptional (standing out as the best program), or transformative (focusing on the educational learning effect).5 Implementation frameworks such as the plan–do–check–act (PDCA) cycle illustrate that CQI is a repetitive and incremental process. The PDCA cycle holds that educational outcomes are compared to predetermined goals and that based on evaluations, action can be taken to address disparities.6

Notwithstanding the positive effects of current quality management approaches, there is a growing consensus that educational improvement is not a straightforward process.7 Three main arguments underpin this conception. First, the success of quality systems and processes depends on the way they are implemented and received by faculty, support staff, and students.8 Traditions of academic freedom, for instance, can stand at odds with the judgmental character of program evaluations.9 Second, medical schools are complex, hierarchical organizations, which include different subcultures.10 These characteristics hamper a collective engagement in improvement efforts.11 Third, CQI is bounded by available information, time, and incentives.12 The lack of rewards for extra efforts to improve education can explain why evaluations are not followed up with concrete actions.13

The idea that structures and processes for CQI should be complemented by an organizational (sub)culture with care for educational quality at its core forms the foundation of the quality culture concept.14,15 This concept is linked to the perspective that organizational cultures reflect “a way to cope with problems of external adaptation and internal integration,”16 and builds on previous...
research on organizational (sub)culture(s) and performance. A quality culture promotes trust and involvement, while leadership and communication can reinforce the link between its hard (system or process oriented) and soft (psychological or value-related oriented) dimensions.

Several studies have contributed to a better definition of the quality culture concept and have identified subcultures within higher education. Moreover, previous research has contributed to the insight that the success of quality management can be explained by its alignment with cultural factors and faculty preferences. Yet most studies on quality culture are of a theoretical, descriptive nature. There is a lack of empirical research on the way students and faculty involved in quality policies and procedures conceptualize a quality culture. Specifically, an enhanced insight across institutions is needed in how work-related psychological attitudes counterbalance quality control and accountability procedures. Increased knowledge in this area will support the merit of nurturing a quality culture.

Our study addresses the questions what are the key features of an organizational quality culture and how do these features contribute to continuous improvement of undergraduate medical education? As systems and processes for CQI in medical schools are increasingly becoming alike, we mainly focus on how work-related psychological attitudes and organizational value orientations make a difference in CQI.

**Method**

**Study design**

We conducted a multicenter focus group study, operating from a social constructivist stance. The study design is characterized by combining a deductive (from theory to practice) and inductive (from practice to theory) approach. Focus group discussions served to capture the broad array of participants’ experiences, perspectives, and attitudes. Data collection, analysis, and interpretation were conducted sequentially, allowing for iterative adaptations and refinement of the analysis procedure.

**Setting**

Education quality advisory committees (ECs) of the 8 medical schools in the Netherlands were purposively selected to participate in this research. EC members are formally elected faculty and student representatives. The central task of ECs is to provide the program management with recommendations on all matters influencing quality of education. ECs have formal rights of consent and advice on the manner in which program evaluations are organized. The committees consist of an equal number of students and faculty (each EC has 8 to 12 members). Four reasons underpin the choice to conduct focus groups among ECs. First, EC faculty generally are academics with ample experience in the development, implementation, evaluation, and improvement of education. Faculty with clinical, nonclinical or preclinical, research, and education backgrounds are represented in the participating ECs. Second, EC members are familiar with the quality systems and procedures in place; EC members have derived additional knowledge on these systems and procedures through training and cooperation with evaluation and policy departments. Third, ECs include student representatives. This representation allows for the incorporation of a different perspective on quality and quality improvement (besides that of faculty). Fourth, the acquaintance of faculty and students through their shared EC membership facilitates open discussion in a heterogeneous group setting.

Each medical school in the Netherlands has a somewhat distinct organizational culture based on its history, record in research and education, and diversity of student intake. Moreover, educational approaches applied within the schools vary to some extent. The educational organization structures and quality management approaches applied across schools are comparable, however. All programs are offered by, or in close cooperation with, academic medical centers. In all participating schools, the PDCA cycle serves as guiding structure for CQI, and all programs adhere to the Dutch Framework for Undergraduate Medical Education.

**Data collection**

We developed an initial focus group guide, with questions structured according to the PDCA cycle. The choice to follow this structure was based on the presupposition that optimizing each step of this cycle will lead to CQI. The guide (Supplemental Digital Appendix 1 at http://links.lww.com/ACADMED/A909) was tested in a pilot focus group session with former EC members from the researchers’ home institution and thereafter adjusted; the order of questions was revised, and the use of theoretical concepts was limited. In May 2018, we approached the ECs of all 8 medical schools in the Netherlands. Six of the 8 committees agreed to participate. Reasons given for not participating were the required time investment and difficulty in planning a meeting and changes in the composition of the ECs. In total, 40 EC members (18 students and 22 faculty) participated in the 6 focus groups (see Table 1). The meetings were conducted between July and December 2018. All meetings (average duration, 79 minutes) were transcribed verbatim, and anonymized and coded transcripts were sent to participants for approval. At the start of each focus group, we asked participants to write down what they considered the most important elements of a quality culture. This exercise activated prior knowledge and was used as a form of data triangulation. At the end of the focus group meeting, we asked participants if their written comments were covered in the discussion.

**Data analysis**

We used template analysis, a stepwise type of thematic analysis, to analyze the data. In template analysis, a succession
of coding templates consisting of hierarchically structured themes is developed and iteratively applied to the data. Themes are modified continuously as the analysis progresses. As a first step, G.W.G.B. and W.S.d.G. open coded 2 transcripts independently, searching for codes that recurred within and between transcripts. Topics described in a recent literature review on quality culture served as sensitizing concepts. Subsequently, these 2 authors met to compare and merge codes and identify themes. The initial coding template comprised 24 themes and 183 codes. Iterative changes to the template were then made by G.W.G.B. based on the analysis of remaining transcripts. These changes concerned further detailing, merging, and linking codes. Hereafter, G.W.G.B. and W.S.d.G. met again to establish the final version of the coding template (including 25 themes and 199 codes). As a last step, G.W.G.B. recoded all transcripts using the final version of the template. The analysis process was supported by application of Atlas-ti 8.3 software (ATLAS.ti, GmbH, Berlin, Germany). The coding of the written exercise performed at the start of focus groups, analysis of transcripts, and discussion of transcripts with the full research team contributed to the identification of 5 overarching themes.

**Reflexivity**

To reflect on diverse interpretations in the data gathering and analysis stages, the full research team held several meetings. In these meetings, we discussed the anonymized and coded transcripts, field notes, and our individual understandings of CQI. All research team members are affiliated with the Faculty of Health, Medicine and Life Sciences at the School of Health Professions Education at Maastricht University in the Netherlands. The focus group moderator (W.S.d.G.) is an educational scientist with extensive experience in interviewing individuals and groups. Another team member, who is a doctoral candidate in quality culture development, acted as observer and note taker (G.W.G.B.). The research team further included an educational scientist with experience in quality assurance (I.H.A.P.W.), a medical physiologist who is a medical education innovator (M.G.A.o.E.), and an educational scientist focusing on innovative learning arrangements (D.H.J.M.D.). Our diverse expertise (in quality management, policy making, and medical education) enabled inclusion of multiple perspectives. From team discussions, we reached a negotiated consensus on the study’s results.

**Ethical considerations**

The study was approved by the Dutch Association for Medical Education Ethical Review Board (NVMO ERB-1046).

**Results**

We identified 5 main themes that reflect quality culture constituents to CQI: (1) fostering an open systems perspective, (2) involving stakeholders in educational (re)design, (3) valuing teaching and learning, (4) navigating between ownership and accountability, and (5) building on integrative leadership. A supportive communication climate (which can be fueled by the organization’s leaders) contributes to, and is integrated within, the first 4 themes. In the following sections, we discuss the themes and their characterizing elements (see Figure 1) and illustrate them with student (Sn) and faculty (Fn) quotes derived in the focus group meetings (FGn).

Our findings reveal a consistent picture on what participants considered the most important aspects of a quality culture. The results are therefore presented in an integrated manner (alternating student and faculty quotes). Participants’ responses were in line with prompts structured under the PDCA model, which implies that faculty and students have internalized a systematic way of working on improvement. This finding is supported by results from the written exercise performed at the start of the focus groups in which respondents frequently referred to the importance of systematic approaches or the PDCA cycle (Supplemental Digital Appendix 2 at http://links.lww.com/ACADMED/A910).

**Fostering an open systems perspective**

Participants identify a general atmosphere of openness, combined with an external orientation and freedom to experiment and innovate as essential for CQI. They express a constant need for flexibility, creativity, and room to translate these insights into practice. To experiment and innovate are needed:

Students and faculty point out that communication within teaching teams and between teaching coordinators requires attention, especially to safeguard alignment of the curriculum content.

**Involving stakeholders in educational (re)design**

The EC members elaborate that involvement and a shared goal orientation of faculty and students in the (re)design of education require attention. This involvement contributes to considering various scenarios, opportunities, and challenges:
Everyone has a different view on it [development of education], and everyone sees different possibilities or implementations. Also, for example, where things can go wrong. Something can look great on paper but can be experienced totally different by students and faculty. That is why I think we need everyone on board. (FG5, S2)

Respondents further note that involvement of faculty and students is important to clarify expectations, take away uncertainty, and therewith create support for educational change activities. However, in practice, the objective to involve—and communicate with—the larger community can be difficult to meet:

During the whole period of plan development, we insufficiently involved the people who eventually needed to implement it. We did not inform them sufficiently and what happens all of a sudden, the pressure was on. It needed to happen. Without people being fully aware of why we were doing this. What the reason was. (FG6, F6)

The balance between bottom-up and top-down improvement approaches is often referred to. On the one hand, approaches initiated at a high level in the organization are needed to provide a basic framework and (re)development structure, while on the other hand, the ability of faculty and students to contribute to plans is important:

That it is neither a top-down nor a bottom-up implementation, but that we identify issues in consultation with all parties involved, and that a consensus can be reached that way. At least, that is the philosophy. Instead of a coordinator or professor designing a curriculum and implementing it like “here you go.” (FG3, S1)

Specific value is attributed to representative bodies. These bodies contribute to improvement by identifying new ideas and providing advice based on insights in—and sharing of—best practices:

I believe that students are very well equipped to map the strong aspects and best practices within education…. In my opinion, part of the challenge for us as students [representatives] is to be aware of what those quality aspects actually are … to consider “this was the idea, this is how it is implemented, and these are the points of attention to improve quality.” (FG3, S1)

The respondents indicate that to safeguard stakeholder involvement, change leaders require project management and communication skills. A lack of attention for such skills in the medical education setting is expressed as reason for experiencing a shortfall of involvement.

Valuing teaching and learning

The motivation of faculty to improve education stems, to an important degree, from commitment to the (academic and professional) development of students. Faculty, for example, point to the motivating effect of meeting with students after teaching activities, during which time students express appreciation for the learning effect of certain activities. According to students, faculty’s commitment manifests in several ways (e.g., through visibility and approachability, responsiveness to student questions, enthusiasm in lecturing).

Committed faculty are more inclined to...
attain a self-reflective attitude and are more responsive to feedback, stemming from an internal drive to improve:

Yes, I believe for one thing, it involves the willingness of the teacher to improve. This is also what you get from many very different improvement plans: One teacher is far more open to criticism than the other. (FG2, S2)

Both teachers and students report that their participation in decision-making processes and shared goal formulation contribute to commitment. In general, attention to and appreciation of education fuel faculty’s motivation to teach. The following quote from a staff member illustrates that valuing research over education can hamper efforts to invest in education:

A head of department is far more interested in faculty members’ research and you producing manuscripts. That is something which pays off … if you implement blended learning or create a new study program blueprint … that’s also output, but it’s not the kind of output that makes the department head happier. (FG5, F2)

Respondents from all 6 institutions report that excessive workload hinders the commitment to education. As a counterbalance, attention to—and appreciation of—education from upper management stimulates commitment:

The quality of education is made or broken by the attention to and enthusiasm for education, because if you do it, you will start to like it, and you will also automatically improve. So I think it mostly concerns time and attention and interest from other people. So yes, educational career paths and your superior’s attention during the annual appraisal … all that kind of … attention within the organization for education. (FG3, F2)

Faculty explain that committed staff members actively seek additional sources of feedback (other than the available standard educational evaluations), for instance, by sparring with peers and by informally asking for student opinions. The student representatives add that a short faculty–student distance and student opportunities to provide feedback informally are instrumental in this respect. Participants point to the importance of valuing teaching and learning through staff–student community building, which can be reached through teaching in smaller units with more room for face-to-face interaction, for example.

Navigating between ownership and accountability

According to faculty, designing teaching and learning activities based on their own insights stimulates ownership and reinforces their motivation to continuously improve. Making the (re)development of education a shared (team) task, with room for professional autonomy, affects educational quality, provided that the team is committed:

The best planning groups are teams in which extensive discussions take place, and where discussion is not avoided. … There has to be commitment and a feeling of togetherness. “We are going to create something.” “We are going to build something.” That is how you get quality. Maybe you will sometimes cross the boundaries set by the management institute. But yes, in that case, they will blow the whistle on you anyway. (FG1, F4)

Autonomy and ownership need to be linked with peer support and accountability procedures (i.e., the PDCA cycle as systematic evaluation and improvement approach). An emphasis on short-term student satisfaction and process over outcome evaluations contradicts faculty’s preferred focus on the longitudinal development of students. Moreover, evaluations might not be aligned to innovations or fail to capture learning effects:

You need to measure to a much larger extent if you reached your goals, and then I come back to my goal again. My goal is not to see happy students after their exam or after the semester. My goal is to see them become a great doctor. That is my goal. (FG6, F5)

Students and faculty report that it is key for feedback to be constructive. Herein, respondents refer specifically to the added value of narrative feedback. A lack of information and communication on the follow-up of evaluations mitigates feedback quality. Further explanation of the purposes and follow-up of evaluations can enhance the likelihood of students’ provision of high-quality feedback. Moreover, embedding clear responsibility structures is key:

We have been trying to find out what is going on for more than a year now. There is nobody who can tell us “that person does this, that one does that, and that one gives feedback,” etc. If you look at a course, it is cumbersome to improve and it will take years. But I think it should be clear from the top down that it is structured in a certain way and who is responsible for what. (FG4, S1)

Complex organizational structures and involvement of many faculty members in coordination and implementation roles are considered to frustrate the follow-up on evaluation results.

Building on integrative leadership

Chart 1 summarizes how integrative leadership contributes to intertwining the tensions present within the 4 themes described previously. With regard to fostering an open systems perspective, the formation of multidisciplinary teams (including students) is considered important. Such teams allow for shared responsibilities, decision making, and the inclusion of different perspectives:

I think you should start with the group that has to perform the task. The group should not be too large, but as heterogeneous as possible … and it should get approval from everyone within the educational organization to perform that task. (FG3, S1)

Leaders ought to stimulate connective links between the overarching (program or organization) goals and individual faculty members’ ambitions, motivations, and specialties. Offering too much freedom to teams or individual teachers can endanger the curriculum coherence:

What you see now is that when those people [the study program management] ignore the content, a lot of teachers develop education in their own way. Of course they do this with the best intentions, let me make that clear, but yeah, then everything becomes all jumbled. (FG4, F2)

A general framework within which teams have freedom to operate helps to establish a balance between flexibility to innovate and stability to remain effective and efficient:

Yes, the intended aims determine the framework and the framework in the end determines that you tell people, “You have leverage and a certain freedom, but within the boundaries of the provided framework.” (FG6, F5)

Abilities of leaders to establish a supportive communication climate are considered important determinants of the success of improvement initiatives. Through communication processes,
leaders can foster transparency on the vision behind organizational change and foster involvement:

> It could just happen to be a good vision, but then you would like to know what it entails exactly. If you share it, this vision, you have some room for errors. Then at least you know what the dot on the horizon is. It could happen that somebody forgets to send you an email, and you think, “It’s okay. I know what we are working towards. I know why this needs to happen now.” (FG2, F2)

The EC members provide various examples of the way leaders promote valuing of teaching and learning and trigger motivation: through support and collaborative teacher networks, establishing education career tracks, and offering additional time or reimbursement for teaching. Leaders affect the balance of ownership (and autonomy) with accountability (and control) through appreciation of education and the provision of constructive feedback.

**Discussion**

In this study, we identified 5 themes that in concert shape a culture for CQI in medical education. As Chart 1 illustrates, various tensions within organizations exist between orientations to maintain and further develop the quality of education. The integration and creation of a synergy between these competing orientations call for increased multidisciplinary collaboration, open communication, investments in faculty development and human resources, and accountability procedures focusing on quality enhancement over quality control.

An open systems perspective (Theme 1) aids in promoting quality development through intensified knowledge sharing and the stimulation of creativity and innovation. Taking such a perspective aids schools in their shift from devoting to CQI efforts (resembling incremental, single-loop learning) to becoming true learning organizations (resembling modified goals, decision-making rules, or both—double-loop learning).

To stimulate a culture for CQI, a need for change in current values of medical schools is apparent. Whereas faculty typically prefer a flexible and human centered organization, and discouraging humanistic orientations.

Broad stakeholder involvement (Theme 2) is key to CQI, as diversity in knowledge, skills, and (potentially competing) values helps to address the multifaceted notion of education quality. However, medical professionals and academics are used to working and learning within silos (relating to their clinical service activities, departments, disciplines, etc.), which reinforce distinct attitudes, problem-solving skills, and the use of a common language. Moreover, physicians and researchers typically have a large degree of autonomy. They are used to taking individual responsibility and are keen to defend interests of their own discipline. Thorough discussions and cocreation sessions involving faculty from different backgrounds form a keystone to initiate collective improvement activities. Additionally, CQI entails a role change from students as clients or consumers to active members of and contributors to the organizational culture.

In line with research on incentives and faculty needs satisfaction, we...
found several illustrations of extrinsic motivators for CQI. The valuing of teaching and learning (Theme 3) through increased funding, time for development, information sharing, and faculty development initiatives influence the organization's improvement potential. Hence, a mere promotion of ownership and accountability (Theme 4) will not lead to beneficial results if required resources to take action are lacking.

Our findings indicate that integrative leadership (Theme 5) supports further quality culture development. Leadership in medical education is changing from individual faculty supervision, guidance, and support to a focus on the broader collective. Instead of attributing responsibility for CQI to strong leadership, leaders are expected to be motivators, mentors, and facilitators. In the knowledge-intensive setting of medical schools, leaders and employees coconstruct meaning and solutions to organizational issues. CQI of medical education is best served with leaders who are able to combine multiple styles and who are able to coalesce different stakeholder goals and ambitions.

The implementation of communities of practice (CoPs) opens a window of opportunity to address the themes of a culture for continuous improvement. CoPs facilitate interaction between teachers from diverse disciplinary backgrounds and create opportunities to gain new perspectives. Moreover, (training) activities organized within these communities strengthen a sense of involvement and enhance competence, confidence, credibility, and connection. CoPs form an environment in which the valuing of teaching and learning, personal development, and teacher identity building is central. Constructive peer feedback processes in teaching and learning communities help to balance ownership and accountability for educational improvement. It should be noted that an open and longitudinal character of CoPs is essential to their added value; they should go beyond the mere establishment of a temporal league of quality champions.

Theoretical and practical significance

The present study gives voice to the opinion of faculty and students that standard quality management approaches should be complemented by insights derived from the quality culture concept. The reported results have contributed to gaining a deeper insight into this theoretical notion. Our findings imply a shift from static approaches emphasizing accountability toward flexible approaches with room for professional autonomy and community building. CQI requires a stronger focus on the valuing of teaching; faculty motivation; and student personal, academic, and professional development.

Strengths and limitations

This study contributes to the available literature as it is one of few studies that research quality culture empirically. We gathered data from multiple institutions and took into account both faculty and student perspectives. The findings suggest that value orientations within medical schools are highly relevant in explaining how quality management approaches and work-related psychological attitudes of faculty interact. Whereas these orientations were rather homogeneous in the participating medical schools, they might vary in other contexts. The fact that we included only medical schools from the Netherlands (6 of 8) should be taken into account in the interpretation and transferability of results. A further limitation is that views of EC members might differ from other important stakeholders. However, as ECs typically operate on the organizational mesolevel, we assume to have captured both management and grassroots perspectives. A third (potential) limitation is that the respondents, despite guaranteed anonymity, might have been reluctant to share particular experiences with researchers affiliated with another university.

Recommendations for future research

To pave new paths for CQI, future research on interventions that convert individual educational improvement approaches to collective endeavors would be particularly valuable. In addition, case studies on best practices relating to the 5 themes identified in this study would provide levers to initiate organizational change and development for CQI.

Conclusions

Of a medical school's 3 missions—education, research, and clinical services—education is often the slowest to recognize that quality improvement and change are necessary, with traditions being dominant. Efforts to nurture the quality cultures in medical schools will help to unfreeze this status quo.

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