

The burden of proof

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Impact Paragraph

The impact paragraph offers a reflection on anticipated and achieved social and scientific impact of this dissertation and the target groups that are thought to benefit from the results. Furthermore, it offers an overview of the dissemination activities undertaken throughout the duration of the research project. I do however believe that achieved impact is a difficult claim to make, the following will refer more to the intended impact than the ‘actual’ achieved impact. If anything, conducting this research first and foremost has had a major impact on my own personal and professional development. For the rest, the proof is in the pudding and, in line with the spirit of this dissertation, the perceptions of the target groups matter.

Main objectives and the most important results and conclusions (Research)

Assessment is believed to have a strong impact on learning. However, risks associated with negative and undesirable consequences of assessment are significant and can even be dramatic. The assessment challenges accompanied with competency-based medical education (CBME) have led to the conceived consequential need to simultaneously use assessment of learning with assessment for learning. This dissertation aimed to gain an in-depth understanding of a whole-system assessment approach from a sociocultural and an interpersonal perspective. It gives accounts of the ways in which learners and teachers in CBME recognised, processed, and utilised assessment for learning within a whole-system approach of assessment, and synthesises the findings of other scholars investigating such an approach in practice. Three empirical studies, a knowledge synthesis, and two commentary papers were included, which have sought to explain the complex relationship between assessment and learning. Programmatic assessment was found to enable meaningful triangulation for robust decision-making and used as a catalyst for learning. However, several problems were identified, including overload in assessment information and the associated workload, counterproductive impact of using strict requirements and summative signals, lack of a shared understanding of the nature and purpose of programmatic assessment, and lack of supportive interpersonal relationships. With this dissertation the affordances of a whole-system approach were further clarified, which concerned the use of multiple assessments in a coherent manner, characteristics of assessment information for learning and the role of follow-up activities, prolonged teacher-learner relationships, adaptive guidance and support, and the introduction of an independent assessment committee. The main conclusion of this dissertation was that assessment for learning in a high-stakes context requires careful consideration of three concepts: agency, trustworthy assessment relationships, and critical inquiry. In order to utilise the learning potential of programmatic assessment, it was argued that the assessment process requires a shift to assessment as a process of co-inquiry to negotiate and determine what counts as legitimate. This should be supported by a safe assessment environment and trustworthy interpersonal relationships in which teachers transform part of their agency towards learners over time and through development. An assessment culture in which critical inquiry is exercised and embraced by all parties involved is more likely to *ensure* quality of competence and build on valuable knowledge traditions of the field, while simultaneously embracing learner agency and diversity to *equip* learners for ongoing learning after formal education.

The (potential) contribution of the results to science, social sectors and social challenges (Relevance & Target group)

The results of this dissertation are relevant on three levels, which involve multiple stakeholders: the (inter)national level concerning policy makers and society-at-large, the institutional level concerning programme directors and curriculum designers, and the programme level concerning staff and students. Assessment influences all those involved in education. Educational institutes allocate, often scarce, educational resources to the assessment process, such as staff time and technical and managerial support. Societal expectations towards accountability may never have been more pressing, and ambitions to overcome undesirable consequences of assessment and to use assessment for more than accountability are high. Despite this high interest and relevance of the topic, research from a sociocultural perspective is still scarce, which is problematic given the shifting conceptualisations concerning learning and assessment in medical education. The results from this dissertation contribute to the academic debate on the use of assessment for learning in a context in which current conceptualisations of accountability risk dominating the assessment culture and where discourses concerning assessment and learning are changing. By using a sociocultural and interpersonal perspective on the complex relationship between assessment and learning, the dissertation contributes to this shift in discourse concerning assessment in competency-based medical education. The gained insights concerning the affordances of programmatic assessment and the conditions that led to these emergences, serve to illuminate, and provide a meaningful basis for moving the theory and practice of a whole-system assessment approach forward.

The aspirations to use assessment for more than accountability is growing in countries across Europe and beyond. Currently, our local institute, Maastricht University, is updating its vision on assessment and explicitly aims for such aspirations, calling its new policy document 'Moving from an assessment culture of testing toward a culture of feedback and development'. Around the world, educational institutes are rapidly and increasingly implementing whole-system approaches to assessment. Overcoming undesirable and unintended consequences of assessment is of interest and at stake for all those involved in education and assessment, specifically due to the negative impact which can marginalise students and have a long-lasting and dramatic impact on their life's, such as burnout problems and anxieties. This dissertation aims to provide more insight in the mechanisms underlying the complex relationship between assessment and learning and to benefit stakeholders with these insights. Specific attention was given to successful implementation characteristics, perceptions of key stakeholders, and ways in which higher education institutions and teaching hospitals can promote an assessment culture supporting learning and longitudinal competency development, which is characterised by a safe and supportive environment, prolonged trustworthy relationships, and promotes ownership and learning agency. Such a culture is assumed to benefit more positive and desirable effects than summative assessment cultures, which overemphasise standardisation, lack of trust, and technical managerial control measures. This dissertation offers strategies from research and existing literature to provide support in navigating tensions when assessment is aspired to fulfil a double duty. Furthermore, implications and suggestions that appertain to faculty development are provided.

Dissemination (Activity)

All studies included in this dissertation are available as open access published manuscripts in scientific journals that address a broad audience in the field of medical and health sciences education and assessment specifically. The dissemination of these studies was further enhanced by research paper presentations at national and international scientific conferences for medical and health science education (i.e., The Association for Medical Education in Europe (AMEE), The European Board of Medical Assessors (EBMA), Assessment of Competence in Medical and the Health Professions (OTTAWA), and The Dutch Association for Medical Education (NVMO)). Moreover, the knowledge synthesis was highlighted in an invited keynote lecture I delivered for The European Board of Medical Assessors in 2019 and served as input for the symposium I have organised at the biannual conference for Assessment of Competence in Medical and the Health Professions (OTTAWA) in 2020. Furthermore, conducting this dissertation influenced my work and activities as an educational consultant in providing faculty development concerning assessment at the Faculty of Health, Medicine and Life Sciences at Maastricht University and at the Maastricht University Medical Centre, and as a teacher and coordinator in the master programme of the School of Health Professions Education.

Since the publication of the papers, I have been invited to present and discuss the results at locally organised educational activities (e.g., the journal club of General Practitioners at the Leiden University Medical Centre, the Wilson Centre of the University of Toronto, Canada, the Medical Education Grand Rounds at the University of Virginia School of Medicine) and have been involved in consultancy projects concerning the design and implementation of programmatic assessment or in support of the preparation for accreditation committees (e.g., Sydney Medical School, Australia, and the University of Fribourg, Switzerland). I have developed and delivered workshops on the above-mentioned conferences (NVMO, AMEE) and a two-day workshop programme funded by the National Board of Medical Examiners of the United States of America (NBME) for a national Faculty Development project for seven different medical school in Brazil. Overall, these invitations highlight the visibility of and interest in the findings of this dissertation.