

Art-based observational training for medical students and surgical residents in two Dutch museums

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Abstract

Background. Art-based education is gaining interest in the medical field, particularly in specialties with a strong visual focus. Visual arts are increasingly used for the development of observational skills and social competencies. While content and objectives of art-based programs widely differ across medical faculties in the Netherlands, the diverse range of options underscore the interest in and the potential of this educational approach. In this report, we explore the value of art-based observational training for medical students and surgical residents in two prominent Dutch museums in Amsterdam and Rotterdam, respectively.

Methods. Our program, conducted at the Rijksmuseum in Amsterdam and Depot Boijmans van Beuningen Museum in Rotterdam engaged medical students (n=24) and surgeons (in training) (n=66) in an interactive workshop focused on art observation led by an experienced art-educator and a clinical professional. Learning objectives were defined and a post-workshop questionnaire was devised to evaluate participants' perceptions, with a specific focus on contribution of the program to professional development.

Results. Both residents and surgeons acknowledged that the program had a positive impact on their professional skills. The program learned them to postpone their judgements and contributed to the awareness of their personal bias. Notably, medical students believed in the program's potential contribution to their professional development. Surgeons were more critical in their evaluation, emphasizing the challenge of sustainable improvement of skills within the limited duration of the course.

Conclusions. An interactive art-based medical education program was offered to medical students, PhD students, house officers, surgical residents and surgeons in two well known Dutch museums. Participants expressed enthusiasm for the innovative educational approach they experienced at the museums. They learned about the importance of critical observation in their professional work, handling of ambiguity and got the opportunity to practice both observational and communicational skills in a creative manner. The findings indicate that medical students and surgical residents can benefit from art-based observational training, using art as a vehicle to develop their professional competencies. *Clin Ter 2024; 175 (2):101-109 doi: 10.7417/CT.2024.5040*

Keywords: Visual Thinking Strategies, Art-based training, Medical education, Observational skills, Personal bias, Museum Medical humanities

Background

The added value of art-based medical education has convincingly been shown in literature. This approach in medical education is currently being explored at seven of the eight medical faculties in the Netherlands (1). At these faculties, visual art is used as a medium for developing observational, communicational, and empathic skills, which are considered indispensable elements in the professional development of a doctor. The design, duration and mandatory participation of art-based education vary between the medical faculties. The programs range from optional series of workshops in artists' studios at the Radboud University in Nijmegen, to honours-classes including lectures and interview assignments at the University of Leiden, to mandatory museum-workshops for medical students at the Erasmus University in Rotterdam. While content and objectives of the programs widely differ across faculties, the diverse range of options underscore the interest in and the potential of this educational approach in the Netherlands.

The Amsterdam University Medical Centre (AUMC) initially established a collaboration with the Rijksmuseum in a program for art-based education. (2) The participants in the Amsterdam project were enthusiastic about the creative, practical methods for observational and communicational skills. These experiences were followed by art-based learning workshops in the Boijmans Van Beuningen museum in Rotterdam. In this article, we explore the value of observational training for medical students and surgical residents in the two aforementioned museums in Amsterdam and Rotterdam, respectively.

Introduction

The interest in art-based education in the medical world is increasing: visual arts are increasingly used for the development of observational skills and social competencies, such as professional communication and empathic abilities. This interest is supported by international research showing that art observation potentially enhances medical education (3).

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In particular specialties with a strong visual orientation, notably surgery, can benefit from training of observational skills. Critical observation plays a central role within surgery; visual findings during physical examination, the interpretation of images in the diagnostic process and of course, recognition of anatomical structures during operations are key elements within the surgical profession (4). In addition to observation, providing a clear, unambiguous explanation of findings is crucial in clinical discussions of patients. Art-based education can help improve this clinical communication and thereby, also enhance the relationship between doctors and their patients (5). Examining art and discussing each other's interpretations in a group also serves as an exercise in interprofessional consultation and Team Building.

In 2021 the Rijksmuseum's educational program 'Tabula Rasa' was tailored to medical students and physicians who were guided through the Rijksmuseum's galleries by an art-educator and an experienced clinician. In Rotterdam, the Erasmus Medical Centre (EMC) includes, as the only faculty of medicine in the Netherlands, a mandatory class in its curriculum entitled "The Art of Seeing", conducted in the Boijmans Van Beuningen museum. Recently, the Department of Surgery at Erasmus MC has started a collaboration with the latter museum, enabling surgical residents and surgeons to participate in the art program as well.

In this report, we focus on the experiences of surgeons (in training) from the training centers of the AUMC and EMC, who attended the art observation program at the Rijksmuseum (RM) in Amsterdam or the Museum Boijmans Van Beuningen (BvB) in Rotterdam. As BvB is currently undergoing reconstructions, the collection was visited in a nearby temporary facility (the Depot). In addition, the

experiences of a series of medical students were assessed who followed the same program in the RM.

In both cities, surgical residents and surgeons were guided through the museum in groups of 8-12 participants by both an experienced art-educator and a clinical professional. The latter brought the discussions in the group into clinical perspective. Participants were engaged in an interactive workshop passing by various art objects in the museums, and working on assignments in small groups.

In the RM, the workshop began with an "observing-in-layers" task, in which after one minute of observation participants took turns naming what they saw on the canvas in front of them (6). It soon became apparent how challenging it was to "name" without providing an interpretation or judgement of value. By separating the three steps of observation (naming, describing and understanding), participants were stimulated to look carefully and critically. The task revealed how easily people form judgements, often unconsciously. This pattern could be changed by encouraging participants to postpone their judgement and first discuss this with their colleagues or peers. (Fig. 1)

The workshop also included an exercise in ambiguity. After the three steps of observation (naming, describing and understanding), participants could form an initial judgement based on their interpretation. Their first judgements were discussed in the group. Through this interaction participants could compare their own judgement with that of others and, at the same time, practice their communication skills. This process sheds light on the consequences of forming judgements too quickly and underline the biases we carry with us. "I have learned to look at objective truths before attaching a subjective interpretation to them" shared one of the participants. Especially for doctors who aim to develop



Fig. 1. The workshop began with an "observing-in-layers" task, in which after one minute of observation participants took turns naming what they saw on the canvas in front of them.



Fig. 2. The workshop included an exercise in ambiguity. By separating the three steps of observation (naming, describing and understanding), participants could form an initial judgement based on their interpretation. Their first judgements were discussed in the group. Through this group interaction, participants were able to compare their own judgement with that of others, and finally arrive at a conclusion.

a treatment plan that suits best their patients, it is crucial to put aside personal bias and to look at the patient in the larger context of his or her wishes and circumstances. (Fig. 2)

The difference between observation and interpretation also played a central role in the workshops at BvB. (Fig. 3) In one of the tasks, participants were asked to describe a piece of art to their colleagues who had their backs turned to it. Based on the description, they then drew the image on a sheet of paper. When comparing their creations to the actual artwork, it became clear that almost everyone unconsciously makes certain assumptions. "I started drawing a triangle and at the end was told that the point was downward!" When the sketchers laid their drawings side by side, it became evident how each one of them interpreted the given information. Not only did this highlight the distinction between observations (of the describer) and interpretations (by the sketcher), but also exemplified the process of transferring information, drawing parallels to the handover of a patient only seen by the observer.

This task was also part of the program in the RM, and was called 'How to see through someone else's eyes.' The surgical trainer was turned with her back to a piece of art and instructed to draw the artwork based on the description by one of her residents. The trainer drew the evoked artwork on a sheet of paper. A second resident observed the communication process between her and her supervisor. (Fig. 4)

Methods

In total, 12 sessions were hosted in which 90 participants of different educational grades took part. Nine sessions (66 participants) were initiated by the Surgical Departments of AUMC and EUMC at the RM and BvB and involved house



Fig. 3. Surgical residents during a workshop at Boijmans Van Beuningen Museum in Rotterdam (presently the Depot).



Fig. 4. How to see through someone else's eyes. The (in this case) surgical trainer was turned with her back to a piece of art and instructed to draw the artwork based on the description by one of her residents. The trainer drew the evoked artwork on a sheet of paper. A second resident observed the communication process between her and her supervisor. This task showed that in the process of transferring information, discrepancies arise between observations (of the describer) and interpretations (by the receiver/sketcher), drawing parallels to the handover of a patient only seen by the observer.

Table 1. Learning objectives





   	1) To enhance observational skills through observation in 'layers'
	2) To postpone judgement until all information is gathered
	3) To test one's own judgement against that of others
	4) To enhance communicational skills in information transfers

Table 2. Participants Amsterdam UMC and Erasmus MC

Participants

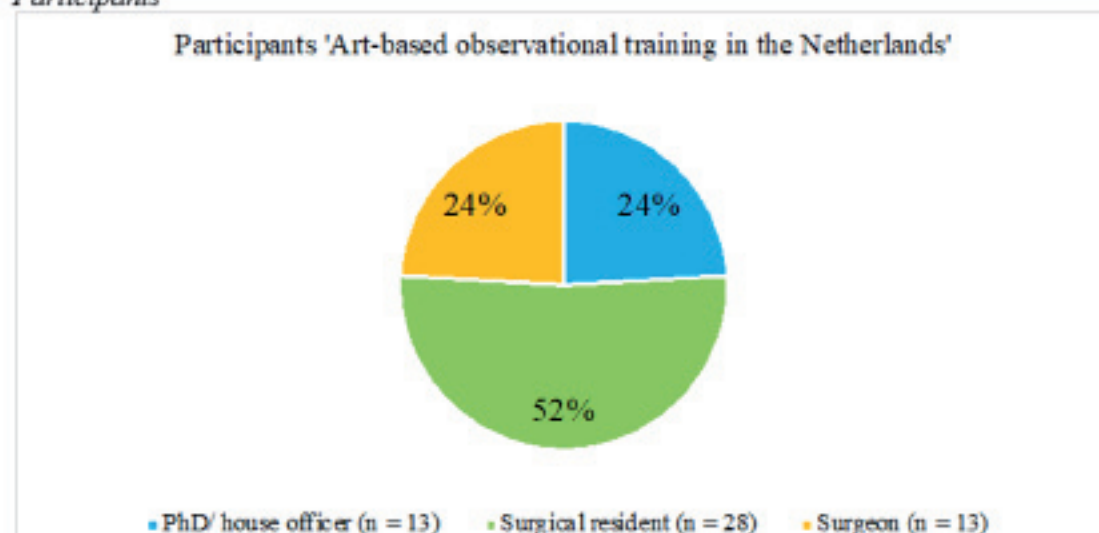


Table 3. Survey questions and outcomes in Amsterdam UMC and Erasmus MC

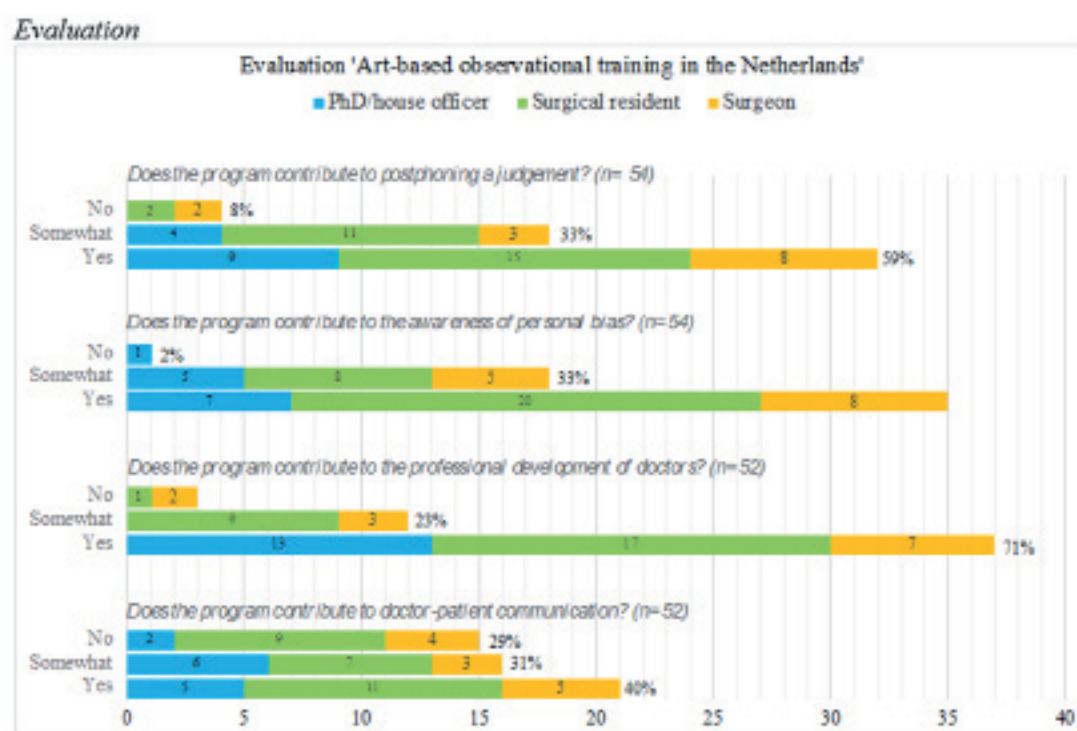


Table 4. Survey questions and outcomes of Medical Students in Amsterdam UMC.

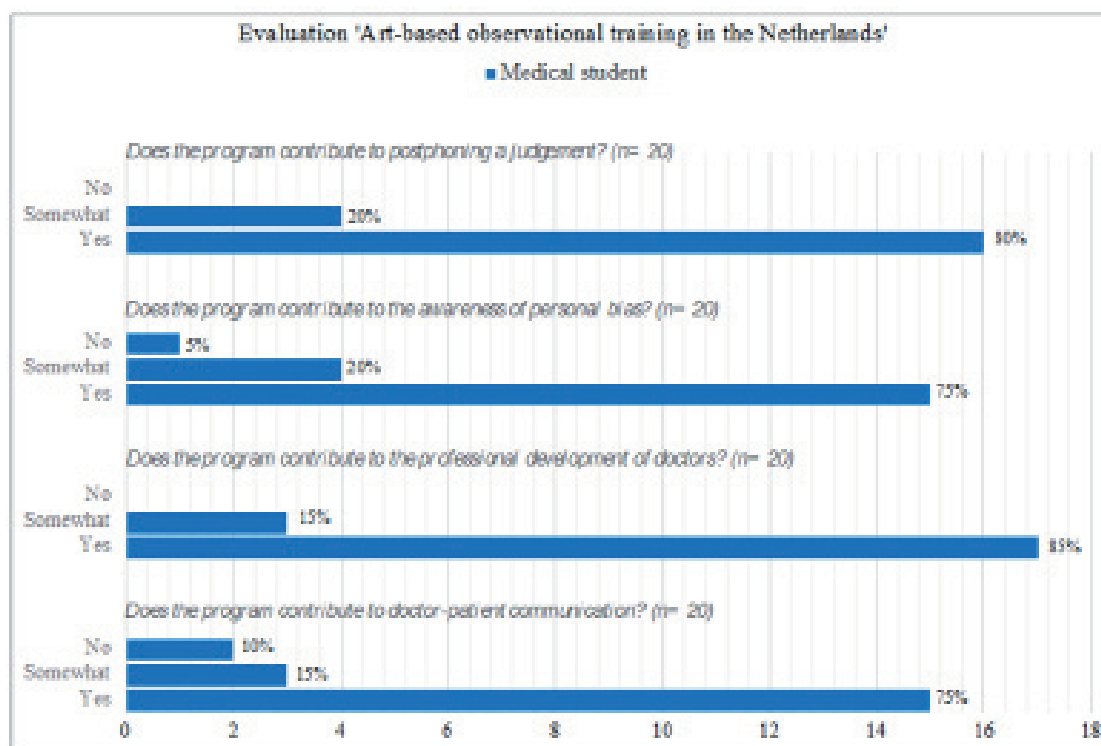
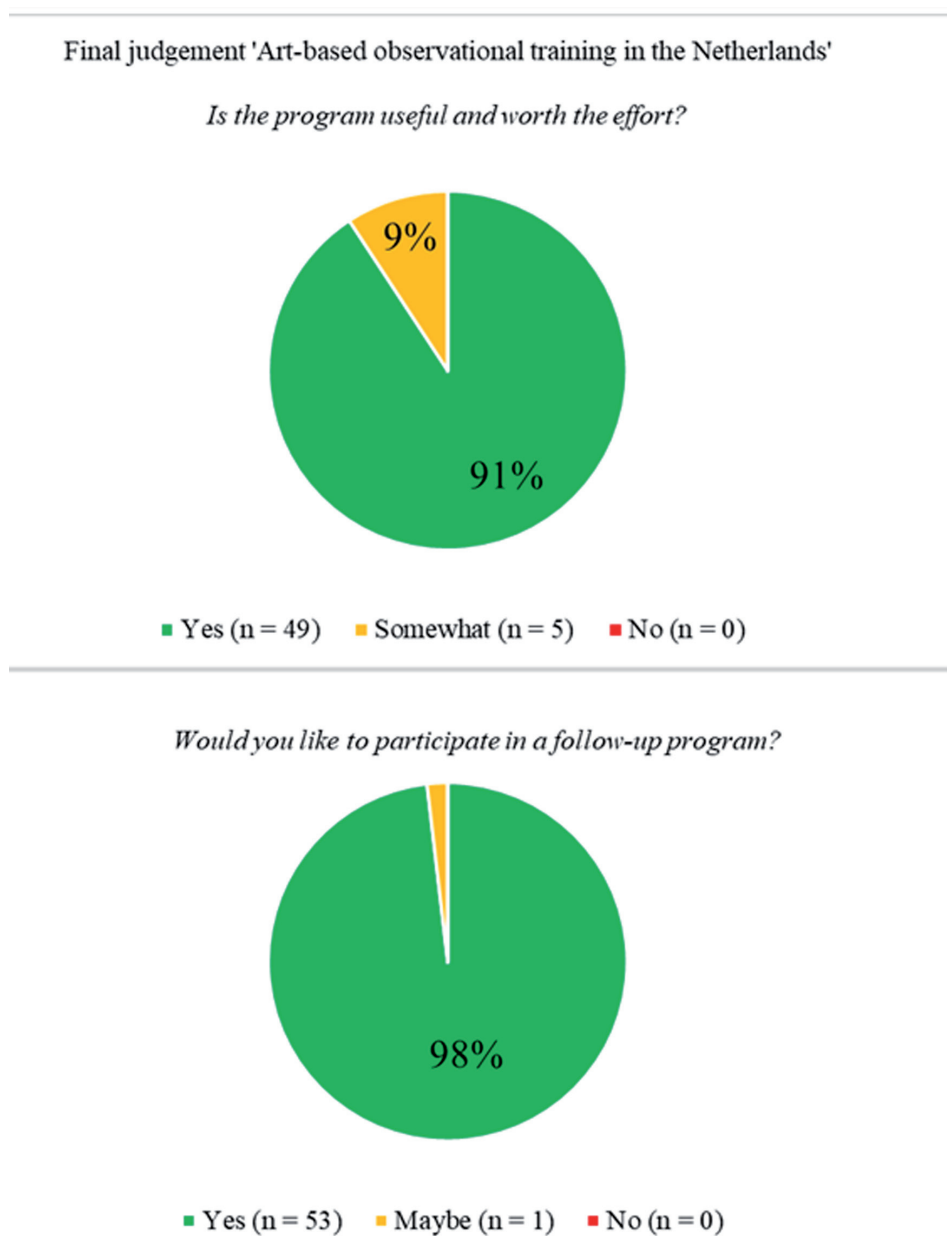


Table 5. Final judgement on usefulness and motivation to participate in a follow-up program



officers, PhD students, residents and medical specialists working at the department of Surgery. Three sessions (24 participants) were initiated by medical student associations and included medical students.

The learning objectives as defined in our program are shown in table 1. We have searched the literature for validated tools that could be used to assess the workshops in our setting. As no tests seemed appropriate, we devised our own questionnaire based on items that were applied in literature to assess the learning objectives of our program (see supplementary file 1). The questionnaire consisted of 'open' questions regarding the content of the program and was prepared by the authors with the aim of evaluating the experiences of participants and the obtained level of satisfaction. After completion of the session, the program coordinator provided the questionnaire via email. The responses of the participants from the Department of Surgery were analyzed

(n = 54). Two assessors (P.E.J. de Ruiter and M.A. Reijntjes) reviewed and scored the given answers ('yes', 'somewhat' or 'no'). Participants were categorized into three groups based on their clinical experience: 1. PhD students and house officers of the Dept. of Surgery, 2. surgical residents and 3. certified surgeons. In addition, a series of medical students was analyzed (n=20).

Results

The questionnaires of 74 of the 90 participants were analyzed. The suboptimal response rate (82%) of the participants probably was due to the fact that return of the questionnaire was not mandatory. This should be stipulated in future studies. Both during discussions after the workshop and in the post-program questionnaires, participants expres-

sed enthusiasm for the innovative educational approach they experienced at the museums. In the questionnaires, 59% ($n = 32$) of the participants indicated that the museum visit learned them to postpone judgement regarding a situation. A similar proportion (62%, $n = 29$) stated that the workshop contributed to awareness of the biases they carry. These elements are crucial for making a well-considered decision concerning treatment conjointly with a patient. A majority of 71% ($n = 37$) of the participants believed that the course could thus contribute to their professional development. Almost all participants (91%, $n = 49$) found the program worthwhile and recognized the value of the insights gained: 98% ($n = 53$) expressed interest in participating in a future follow-up course in the project.

Both residents and surgeons felt that the program had a positive effect on their professional skills, but were more critical about impact on their communication skills. A minority of 40% ($n = 21$) of the participants expected the program to contribute to better communication between doctors and patients. Surgeons wrote in their 'open' answers in the questionnaires, that the workshops were better suited for improving communication skills between themselves and other healthcare providers, rather than with patients. After all, during the tasks at the museum, they practiced exchange of information among themselves. A proportion of 31% ($n = 29$) recognized the value of a patient-centered, communicational learning objective, but mentioned in their 'open' answers that a single workshop was not enough to achieve a sustainable improvement of communication skills.

Twenty participants were medical students of the University of Amsterdam. Analysis of this group shows that students were less critical than surgeons in their evaluation of the workshops. In contrast to the surgical group, up to 75% ($n = 15$) of the students expected the program to contribute to better communication with their future patients. A majority of 85% ($n = 17$) of the students expressed belief that the course could contribute to their professional development as future doctors.

Discussion

The aim of this article was to explore the value of art-based learning for observational training of medical students and surgical residents. Our findings indicate the potential of art-based education in enhancing observational skills and professional development for medical students and surgeons in training. Close inspection of visual art provides freedom in this context: there is no time pressure, prior knowledge is not required and there is no 'right or wrong'. These prospects allow participants at any point in their medical training to work together freely, enhancing their motivation and creating space for new insights, creativity, and personal reflection.

Our key findings are supported by a recent systematic review evaluating visual art-based training in undergraduate students and residents, where the strongest evidence of effectiveness of art-based education was found in observational skills as compared to other competencies (7). This review also described the positive contribution of art-based education to tolerance for ambiguity and empathy, both

essential competencies for professional development in the medical profession.

The difference in satisfaction in obtaining the learning objectives between students and the surgical group can be attributed to the level of their education and professional experience. As described in recent literature, visual art education so far has mostly focussed on preclinical medical students, who have not yet been exposed to clinical doctor-patient interactions (3, 7). Medical students have received less training in the professional skills dealt with in the workshops compared to the certified doctors and therefore, likely ascribe greater value to acquiring these proficiencies.

The research, albeit scarce, that has been conducted in residents and specialists, mostly focused on enhancing observational skills in specialties involving strong visual orientation, such as dermatology and ophthalmology. In these specialties, improvement of observational skills has been demonstrated after arts-based interventions (7). Our findings suggest that surgical residents and surgeons alike, could benefit from art-based training to improve their observational techniques. This is in keeping with the strong visual component of surgery in dealing with anatomical situations and operative procedures. We however, did not find a profound effect on provider-patient communication in the surgical residency group. This does not comply with a recent study conducted in dermatology residents reporting improved observational techniques after art-based education resulting in adjusted clinical communication strategies and improved patient communication (5). In addition, a recent review of art-based medical humanities curricula in surgical residency suggested that formal art training improved the ability to draw and communicate about operations and could be used for patient didactic purposes (4). These promising results call for a follow-up course with targeted tasks that specifically address provider-patient communication within our program.

A challenge for the future of our program is quantitative assessment of the effects of art-based education on observational and communication skills of surgical residents. Possibly, this assessment could include observational and interpretation skills of diagnostic imaging, surgical situations and patient didactic drawing as well, allowing to substantiate outcomes in a clinical setting. When this form of art-based education expands to more training centers in the Netherlands, with national museum programs being centrally coordinated and aligned, evaluation in a larger group of surgical residents is feasible. In most training centers, an important local museum is available where art-based education can be incorporated into surgical training.

Conclusion

The present study explored the value of art-based observational training for medical students and surgical residents in The Netherlands. Museum workshops were offered in the Rijksmuseum and Boijmans van Beuningen Museum to medical students, PhD students, house officers, surgical residents and surgeons of the surgery departments of the Amsterdam UMC and Erasmus MC. In the museum,

they practiced observational and communication skills and learned to handle ambiguity. The findings indicate that medical students and surgical residents can benefit from art-based observational training, using art as a vehicle to develop their observational skills and professional competencies. Therefore, art-based observational training potentially contributes to essential clinical competencies in the professional development of every (future) doctor. Additional research is required to assess these findings on a quantitative basis, and to examine how these findings can result in improved patient communication and clinical care.

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Supplementary file 1: Questionnaire

Evaluation of art-based observational training in two Dutch museums.

Name:

Email:

Function (please indicate): Medical student/ House officer / PhD / Resident / Medical Specialist

1. Why did you sign up for this program?
2. (To what extent) Are you interested in art in your daily life?
3. Did you benefit from this program?
4. Did you find this program worth attending?
5. What did you think of the length and structure of the program?
6. Do you think you will look at art differently after attending this program?

(If not, do you know why? If yes, in what way?)
7. Do you think this program learns you to postpone your judgement about a situation (until all information is gathered)?
8. Do you think this program contributes to awareness of how your own judgement is formed and the biases you carry with you?
9. Do you think this program could contribute to your professional development as a doctor?
10. Do you think this program could enhance communication between doctors and patients?
11. What do you think could be changed or improved in this program?
12. If there is a follow-up to this art-based learning program, would you like to participate again?

Thank you very much for your participation, efforts and evaluation!