

## Opinion Paper

Ayşe Banu Demir\*, Zuhâl Okuyan, Alexander Van Eck, Gokhan Mura,  
Emre Gonlugur, Can Karaca and Hakan Abacıođlu



# The impact of visual thinking in medical education

## [Görsel düşünmenin tıp eğitime etkisi]

<https://doi.org/10.1515/tjb-2019-0186>

Received May 3, 2019; accepted March 29, 2021;

published online October 23, 2021

### Abstract

**Background:** Considering medical humanities, medicine and art are two areas that resemble each other at several features. Clinical diagnosis involves the observation, description and interpretation of information of which visual ones take an important one. The skills described are important skills in the field of visual arts, as well. Underlying a good clinical practice; clinical examination and observation skills constitute an important place. Although in several studies, these skills are shown to be improved by analyzing visual art pieces, courses intended to improve visual thinking skills are not that much common in medical faculty curriculums.

**Methods:** In this article, we share our opinion about the use of visual thinking in medical education by providing preliminary reflection results of learners from the second year of medical education about the visual thinking course that we have recently started to apply in Faculty of Medicine in collaboration with Faculty of Fine Arts in Izmir University of Economics in order to improve the observational skills of learners.

\*Corresponding author: **Ayşe Banu Demir**, Faculty of Medicine, Izmir University of Economics, Sakarya Street No: 156, Izmir, 35330, Turkey, E-mail: banu.demir@ieu.edu.tr. <https://orcid.org/0000-0003-4616-8151>

**Zuhâl Okuyan, Can Karaca and Hakan Abacıođlu**, Faculty of Medicine, Izmir University of Economics, Izmir, Turkey. <https://orcid.org/0000-0003-2173-206X> (Z. Okuyan). <https://orcid.org/0000-0003-4930-6222> (C. Karaca). <https://orcid.org/0000-0003-3292-1835> (H. Abacıođlu)

**Alexander Van Eck**, Faculty of Fine Arts, Izmir University of Economics, Izmir, Turkey; and Faculty of Architecture, Izmir Institute of Technology, Izmir, Turkey. <https://orcid.org/0000-0001-6359-9821>

**Gokhan Mura and Emre Gonlugur**, Faculty of Fine Arts, Izmir University of Economics, Izmir, Turkey. <https://orcid.org/0000-0002-1699-2329> (G. Mura). <https://orcid.org/0000-0001-5446-3754> (E. Gonlugur)

**Results:** Reflection results of the learners support the view that training art-viewing skill is helpful to improve observational and descriptive skills.

**Conclusions:** Increasing interdisciplinary programs on visual thinking in medical curriculums have the potential to overcome several professional development challenges in clinics.

**Keywords:** clinical decision making; medical education; physical diagnosis; reflection; visual thinking strategies.

### Öz

**Amaç:** Tıbbi beşeri bilimler düşünüldüğünde, tıp ve sanat birçok yönden birbirine benzeyen iki alandır. Klinik tanı, görsel verilerin de önemli yer tuttuđu bilgilerin, gözlemlenmesi, tanımlanması ve yorumlanmasını içerir. Anlatılan beceriler görsel sanatlar alanında da önemli becerilerdir. İyi bir klinik uygulamanın temelinde; klinik muayene ve gözlem becerileri önemli yer tutmaktadır. Çeşitli çalışmalarda bu becerilerin görsel sanat eserleri analiz edilerek geliştirildiđi gösterilse de, tıp fakültesi müfredatlarında görsel düşünme becerilerini geliştirmeye yönelik dersler o kadar yaygın değildir.

**Gereç ve Yöntem:** Bu yazıda, İzmir Ekonomi Üniversitesi'nde Güzel Sanatlar Fakültesi ile birlikte Tıp Fakültesi'ndeki öğrencilerin gözlem becerilerini geliştirmek amacıyla yeni uygulamaya başladığımız görsel düşünme dersi hakkında tıp fakültesi 2. sınıf öğrencilerinin refleksiyon sonuçlarını sunarak, tıp eğitiminde görsel düşünmenin kullanımına ilişkin görüşlerimizi paylaşıyoruz.

**Bulgular:** Öğrencilerin refleksiyon sonuçları, sanat-izleme becerisi eğitiminin, gözlem ve betimleme becerilerini geliştirmeye yardımcı olduđu görüşünü desteklemektedir.

**Sonuç:** Tıp müfredatlarında görsel düşünme üzerine olan disiplinlerarası programların artırılması, klinikteki çeşitli mesleki gelişim zorluklarının üstesinden gelme potansiyeline sahiptir.

## Introduction

Observation is an important component of clinical diagnosis and reasoning [1]. Direction of data gathering and diagnosis are among the major clinical reasoning difficulties [2, 3], in which observational skills are used. Gathering visual information from the patient, recognition of patterns and interpretation of data together with patterns is required for a rigorous clinical decision making. Therefore, along with critical thinking, the use of visual thinking skills is also necessary during clinical reasoning.

When artistic themes such as color, line, symmetry, texture and pattern are considered, one can say that several physical examination elements such as vision, gait, cranial nerves and dermatology also focus on similar themes during visual diagnosis [4]. Several sources support the idea that the use of visual thinking strategies improves observational skills based on visuals during clinical examination [5–10].

Although courses which are intended to improve visual thinking skills in medical education are not that common, some medical schools use art-viewing in a clinical concept [5]. We have reviewed visual thinking courses in several medical schools (Table 1) and designed a unique visual thinking course in collaboration with the Faculty of Fine Arts, which we recently started to apply in our medical curriculum as an elective course. Seventeen students from the second year of medical education took the course which lasted for 16 weeks. The learners were trained for art viewing in the first half of the course and for observation of health-related photos/situations to apply their art-viewing skills into clinical conditions that depend on visual observation. The course was designed as interactive, students centered sessions during which students were trained in skills like art-viewing, empathy, communication and clinical areas such as dermatology, radiology and orthopedics where visual evaluation can be helpful for physical diagnosis. The clinical part of the course only concentrated on training for the visual recognition of the patterns in various clinical cases by using the art-viewing skills. Interdisciplinary nature of the lecture was critical for our educational strategy. Learners' reflections after the course support the potential of the use of visual thinking strategies to improve observational skills and empathy.

## Discussion

By engaging with art works, we believe that learners start to develop more empathy and consider different opinions

**Table 1:** Examples of visual thinking programs applied in several medical schools.

| School name                 | Program name                                                        |
|-----------------------------|---------------------------------------------------------------------|
| Perelman School of Medicine | Art, observation and empathy                                        |
| Harvard Medical School      | Training the eye: Improving the art of physical diagnosis           |
| University of Cincinnati    | Art of the clinical encounter                                       |
| Icahn School of Medicine    | The pulse of art                                                    |
| University of Buffalo       | Learning to look: An Artist's remedy to the Physician's perspective |
| University of Washington    | Visual thinking: How to observe in depth                            |

more mindfully since the training also encourages critical thinking. We think that learning how to look at an art-work and sufficient observational exercise considering art pieces will help to improve the observational skills of learners in clinics. Our opinion is supported by a recent randomized controlled study, which shows that art observation training for first year medical students can improve ophthalmologic observation skills [8].

Although the number of learners who took our course is low, which is a weakness for a precise conclusion, preliminary reflection results of the learners support the view that training art-viewing is helpful to improve observational and descriptive skills (Table 2). We also think that incorporating humanity in medical education affects the empathy, awareness and sensitivity features of the learners towards clinical conditions, which is supported by several studies [4, 7]. There does not exist any contrary information in the literature about visual thinking strategies in physical

**Table 2:** Reflection results of the learners about the designed course. The statements are the common topics in reflections.

| Statements                                                                | Number of learners who have reflected on statements |                | Total |
|---------------------------------------------------------------------------|-----------------------------------------------------|----------------|-------|
|                                                                           | Supportive views                                    | Contrary views |       |
| My observational skills improved.                                         | 16                                                  | 1              | 17    |
| My descriptive skills improved.                                           | 6                                                   |                | 6     |
| I Started to do more empathy.                                             | 10                                                  |                | 10    |
| I Could make interconnections between art-viewing and physical diagnosis. | 16                                                  |                | 16    |
| Visual thinking strategies are useful for my professional life.           | 16                                                  | 1              | 17    |

diagnosis. Although we think that visual thinking strategies are useful for the clinical decision-making process through improving observational skills, more research studies are needed to assess the effectiveness of these lectures at clinical settings more precisely.

## Conclusions

In the literature, the use of visual thinking strategies during medical education seems to enhance several observational skills of learners and is helpful in performing clinical diagnosis. Reflections of the learners who took our course seems to be in line with this view. To our knowledge, our designed course is among the forerunners in Turkey and we think that increasing these interdisciplinary programs in medical curriculums have the potential to help to overcome several professional development challenges.

**Research funding:** None declared.

**Author contributions:** All authors have accepted responsibility for the entire content of this manuscript and approved its submission.

**Competing interests:** Authors state no conflict of interest.

**Informed consent:** Not applicable.

**Ethical approval:** Not applicable.

## References

1. Cox M, Irby DM. Educational strategies to promote clinical diagnostic reasoning. *N Engl J Med* 2006;355:2217–25.
2. Audetat M-C, Laurin S, Dory V, Charlin B, Nendaz MR. Diagnosis and management of clinical reasoning difficulties: part 1. Clinical reasoning supervision and educational diagnosis. *Med Teach* 2017;39:792–6.
3. Audetat M-C, Laurin S, Dory V, Charlin B, Nendaz MR. Diagnosis and management of clinical reasoning difficulties: part II. Management and remediation strategies. *Med Teach* 2017;39:797–801.
4. Katz JT, Khoshbin S. Can visual arts training improve physician performance? *Trans Am Clin Climatol Assoc* 2014;125:331–41.
5. Miller A, Grohe M, Khoshbin S. From the galleries to the clinic: applying art museum lessons to patient care. *J Med Humanit* 2013;34:433–8.
6. Naghshineh S, Hafler JP, Miller AR, Blanco MA, Lipsitz SR, Dubroff RP, et al. Formal art observation training improves medical students' visual diagnostic skills. *J Gen Intern Med* 2008;23:991–7.
7. Reilly J, Ring J, Duke L. Visual thinking strategies: a new role for art in medical education. *Fam Med* 2005;37:250–2.
8. Gurwin J, Revere KE, Niepold S, Bassett B, Mitchell R, Davidson S, et al. A randomized controlled study of art observation training to improve medical student ophthalmology skills. *Ophthalmology* 2018;125:8–14.
9. Shapiro J, Rucker L, Beck J. Training the clinical eye and mind: using the arts to develop medical students' observational and pattern recognition skills. *Med Educ* 2006;4:263–8.
10. Russell S. Improving observational skills to enhance the clinical examination. *Med Clin* 2018;102:495–507.