The impact of visual thinking in medical education

[Görsel düşünmenin tıp eğitimine 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.

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: Tibbi beşeri bilimler düşünündüğünde, tıp ve sanat birçok yönden birbirine benzeyen iki alanıdır. Klinik tani, görsel verilerin de önemli yer tuttuğu bilgilerin, gözlemlenmesi, tanımlanması ve yorumlanması içerir. Anlatılan beceriler görsel sanatlar alanında da önemli becerilerdir. İşte bir klinik uygulamanın temelinde; klinik muayene ve gözlüm becerileri önemlidir yer tutmaktadır. Çeşitli çalışmalarında bu becerilerin gözal sanat eserleri analiz edilerek geliştirildiği gösterilse de, tıp fakültesi müfredatlarında görsel düşünme becerilerini geliştirmeye yönelik dersler o kadar yaygın değildir.

Gerçek ve Yöntem: Bu yazida, 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, tü蟋te göre düşünme becerilerini geliştirmeye yönelik dersleri o kadar yaygın değildir.

Bulgular: Öğrencilerin refleksiyon sonuçları, sanat-izleme becerisi eğitiminin, gözlem ve betimleme becerilerini geliştirmeye yardımcı olduğunu gösterdikleri ve bu dersin belirgin bir öneme sahip olduğunu belirtmektedir.

Sonuç: Tıp müfredatlarında görsel düşünme üzerine olan disiplinlerarası programların artınıması, klinikteki çeşitli mesleki 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 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

| Statements                                      | Number of learners who have reflected on statements |
|-------------------------------------------------|---------------------------------------------------|
| 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    |

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                        |

Table 2: Reflection results of the learners about the designed course. The statements are the common topics in reflections.
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 I. 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 J, 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, Dubrof 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.