

An Investigation of How to Refer Doing Statistics in 8th Grade Mathematics Textbooks

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Abstract: Textbooks should provide suggestions for teaching the content and helping students learn big ideas related to concepts being covered (Tarr, Reys, Barker & Billstein, 2006). Since textbooks were used frequently by teachers for covering the key points of the lesson the study recommended that textbooks should have some requirements (Son, 2008; Stodolsky, 1989). The requirements should satisfy the learning objectives of the educational system (MoNE, 2018a). One of the learning domain which include the learning objectives to be taught to students in mathematics textbooks was data handling (MoNE, 2018b). Data handling included doing statistics: the process of formulating questions, collecting, analyzing, and interpreting data to help make decisions in everyday life (NCTM, 2000). The purpose of this study was to investigate the data handling sections of the 8th grade mathematics textbook which are used in MoNE schools in the 2018-2019 school year. It was also evaluated in terms of how involve doing statistics process. For the purposes of the study, a document analysis was used. In order to analyze the data, content analysis was used. The findings of this study depicted that textbooks are inadequately encouraging students in doing statistics process. Furthermore, it was observed that the textbooks aren't cover focusing conceptual connections sufficiently.

Keywords: 8th grade mathematics textbooks, Data handling, Doing statistics

Introduction

Textbooks are thought to serve as an important source providing guidance for teachers about what to teach and how to teach it and how to evaluate their students as well (Alajmi, 2009; Haggarty & Pepin, 2002; Hirsch, Lappan, Reys, & Reys, 2005). Moreover, they have an important role in providing learning opportunities for students in the way of learning mathematics (Fan, 2013; Houang, Wang, Wiley, Cogan & Wolfe, 2001; Schmidt, McKnight, Houang, Wang, Wiley, Cogan & Wolfe, 2001; Weinberg & Wiesner, 2010; Wijaya, van den Heuvel-Panhuizen, & Doorman, 2015). Another remarkable point is that textbooks have an important influence on classroom works and constitute the backbone of math instruction (Kajander & Lovric, 2009; Törnroos, 2005). It is stated that textbooks are the most common source used in the learning process both in our country and in the world (Arslan & Özpınar, 2009; Aydoğdu İskenderoğlu & Baki, 2011; Beaton, Mullis, Martin, Gonzalez, Kelly, & Smith, 1996; Grouws & Smith, 2000; Johansson, 2005; O'Sullivan, 2017; Törnroos, 2005; Weiss, Banilower, McMahon & Smith, 2001). The findings obtained from international exams also support this belief and show that teachers use mathematics textbooks as the main source when selecting teaching methods (Mullis, Martin, Foy & Arora, 2012). Research shows that secondary school math teachers use textbooks at the most (Grouws & Smith, 2000; Weiss ve diğerleri, 2001). As they support teachers and teaching, textbooks can be said to be an integral part of mathematics education. Due to the fact that textbooks have a direct impact on the concept to be selected by teachers and on the decisions made by teachers in relation to how to teach this concept, the role of textbooks becomes more critical (Reys, Reys, & Chavez, 2004). Fan and Kaeley (2000), in their study examining the impact of textbooks on teaching strategies, found that textbooks can affect not only the content of teachers' lessons but also how teachers actually teach. At the same time, math textbooks affect what subjects are covered and how these subjects are presented (Yang & Sianturi, 2017) because it is unlikely to be presented in class when a subject is not covered in the textbook (Alajmi & Reys, 2007). In this context, textbooks are expected to reflect the current curriculum in full (Ubuz, Erbaş, Çetinkaya & Özgeldi, 2010) because it can be said that the textbooks serve as a bridge between curriculum designers and the teacher (Valverde, Bianchi, Wolfe, Schmidt & Houang, 2002). It is also emphasized that textbooks are closer to

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the classroom environment than the curriculum (Howson, 1995). This once again demonstrates the need for the textbooks to reflect the knowledge and skills targeted in the curriculum.

Data processing is a learning area which is emphasized in both primary and secondary school mathematics curriculums and aims to equip students with various knowledge and skills at each class level (MONE, 2018b). It is stated that this learning area should be structured to take into account the process of doing statistics in the teaching process (MONE, 2018b; Van de Walle, Karp & Bay-Williams, 2012). It is emphasized that the data teaching should be carried out on the basis of the processes of creating a searchable question, collecting data, processing and analyzing the data and interpreting the results (MONE, 2018b). Textbooks should also be designed to take these processes into account. Therefore, it is aimed to examine how the 8th grade mathematics textbooks which have been found to be suitable for teaching in the 2018-2019 academic year include the process of doing statistics.

Method

In the current study, qualitative research method was adopted and document analysis was used. Document analysis is a method that allows the examination of written and visual materials about the subject of interest (Yıldırım and Şimşek, 2011). Answer is sought to the problem of interest by conducting a detailed inspection of the materials (Corbin and Strauss, 2008; Glenn, 2009). The sections related to the data processing learning area in the 8th grade mathematics textbooks approved to be studied in the 2018-2019 academic year were examined. In the Education Information Network, two 8th grade mathematics textbooks were found and these textbooks were coded as Textbook A and Textbook B (Böge & Akıllı, 2018; Kişi, 2018). The explanations, activities, questions and examples included in the textbooks were analyzed using content analysis within the context of doing statistics (forming searchable questions, collecting data, processing and analyzing the data and interpreting the results). The content analysis focuses on summarizing the information at hand according to certain contents and presenting it to the reader (Cohen, Manion & Morrison, 2007). The data related to the data processing learning area of the 8th grade mathematics textbooks were analyzed within the context of the above-mentioned themes and then are presented to the reader.

Results and Discussion

When the explanations in the introduction parts of the textbooks were examined, it was found that the explanations in the introduction part of the textbook A support the process of making statistics while the explanations in the introduction part of the textbook B are structured in such a way as to bring the data representation capacity of graphs to the fore (Figure1, 2).

Verilerin Grafik ile Gösterimi

Deney, gözlem veya anket sonucunda elde edilen verilerin temsil edilmesi (gösterilmesi) için kullanılan nokta, şekil, resim veya çizgilere **grafik** denir.

Grafikler, ekonomide, meteorolojide ve fen bilimlerinde sıkça kullanılır. Grafikler, sayısal verileri görsel hâle getirerek onları daha hızlı anlamamızı sağlar. Veriler arasındaki ilişkileri ve bir verinin bütün veri grubu içindeki yerini görerek birtakım sonuçlara ulaşmamıza yardımcı olur. Bu sonuçlara dayalı olarak tahminde bulunmamızı sağlar.

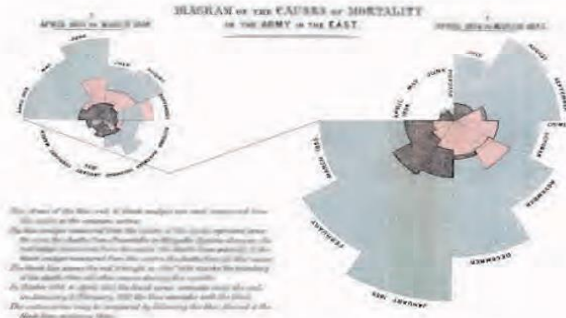
Verilerin gösteriminde amaca yönelik çeşitli grafik türleri kullanılabilir.



Figure 1. Textbook B

Neden Öğrenmeliyiz?

Veri analizi, temelini matematikten alan bir bilim dalıdır. İstatistik, verileri toplama ve toplanan verileri düzenleme, analiz etme, yorumlama, objektif ve doğru kararı verme ile ilgili bilimsel ve teknik metotlar geliştiren ve uygulayan bir bilim dalıdır. Veri analizini reklam, kamuoyu yoklamaları, güvenilirlik tahminleri, nüfus değişim eğilimleri, sağlık riskleri, öğrencilerin okul başarıları, ürün satışlarının yıllara göre dağılımı, imalathanelerde üretilen ürünlerin miktarları, bir şehrin yıllara bağlı olarak aldığı yağış miktarlarındaki değişim, ülkeler arasındaki üretim karşılaştırmaları, bir internet sitesine bir günde giren insan sayısının incelenmesi gibi pek çok alanda kullanılmaktadır.



Flornce Nightingale tarafından tasarlanan grafik.



Flornce Nightingale

1850'li yıllarda, Kırım Savaşı'nda İngiliz ordusundaki yaralı askerlere bakmak üzere İstanbul Selimiye Kışlası'nda kurulan askeri hastaneye gönderilen Florence Nightingale (Filorens Naytingeyl), hastanenin bakımsız olduğunu ve insanların savaş yaralarından çok sıtma ve çeşitli bulaşıcı hastalıklar nedeniyle öldüğünü tespit etmiştir.

Flornce Nightingale, bu nedenle çalıştığı hastanenin şartlarını iyileştirmek için çeşitli çalışmalar yapmıştır. Yaptığı çalışmalarda özellikle veri analizinden yararlanmış, gözlemlediği eksiklikleri grafiğe dönüştürerek bir veri grafiği oluşturmuştur. Hastanenin temiz ve bakımlı olması gerektiğini söyleyerek generalleri ve politikacıları bu konuda harekete geçirmiştir.

Bugünkü modern hastanelerin Nightingale'nin veri analizlerinden yararlanarak şartlarını iyileştirdiğini söyleyebiliriz.

Figure 2. Textbook A

It is observed that the explanations about the graphs in the textbook B are structured in such a way as to emphasize the elements of graphs. Moreover, there are explanations mentioning the functions of graphs (Figure 3).

Bilgi

Verilerin yatay ve dikey eksenlerin oluşturduğu düzlemde bir nokta ile gösterildikten sonra bu noktaların birleştirilmesiyle elde edilen grafik türüne **çizgi grafiği** denir.



Bilgi

Yatay ve dikey eksenlerin oluşturduğu bir düzlemde, verilerin dikdörtgenlerle gösterildiği grafik türüne **sütun grafiği** denir. Sütun grafiğinde dikdörtgenlerin (sütunların) genişlikleri eşittir. Sütunlar arasında eşit uzunlukta boşluklar bulunur.

! Uyarı

Çizgi grafiği, verilerdeki değişimin gösterilmesi için en uygun grafik türüdür.

Figure 3. Textbook B

It has also been revealed that the explanations in the textbook A are structured in such a way as to put greater emphasis on the functions of graphs (Figure 4).

Bunu Öğrenelim

Çizgi grafiği, bir olayın zaman içerisinde nasıl değiştiğini göstermek için kullanılan bir grafik türüdür. Çizgi grafiğinde değişkenler sürekli olmalıdır. Örneğin zamana göre hava sıcaklığındaki değişim, zamana göre bir aracın yakıt tüketimindeki değişim ya da bir aracın aldığı yolun zamana göre değişimi ve bir ağacın zamana göre boyundaki uzama miktarı çizgi grafiği ile gösterilir.

Bunu Öğrenelim

Bir veriyi grafiğe dönüştürürken grafiklerin aşağıdaki özelliklerinden yararlanılır.

Daire grafiği, bir bütünün parçaları hakkında bilgi vermek için kullanılan bir grafik türüdür.

Sütun grafiği, verilerin karşılaştırılması için kullanılan bir grafik türüdür.

Çizgi grafiği, belli bir zaman aralığındaki sürekli değişimin gözlenmesinde kullanılan bir grafik türüdür.

Figure 4. Textbook A

While some place is allocated to giving information about how to draw graphs in the textbook A, no information is given about the drawing of graphs in the textbook B (Figure 5, 6).

Birlikte Yapalım 1

Bir ilin haftanın beş gününe ait her gün aynı saatte ölçülen sıcaklık değerleri aşağıdaki tabloda verilmiştir. Bu tabloya göre bu ilin sıcaklığını gösteren çizgi grafiğini çizelim.

Tablo: Günlere Göre Hava Sıcaklığı

Günler	Sıcaklık
Pazartesi	20°
Salı	15°
Çarşamba	20°
Perşembe	20°
Cuma	25°

Yatay ve dikey eksenini çizerek yatay eksene günler; dikey eksene sıcaklık değerlerini yerleştiririm.

Günler ile sıcaklıkların kesiştiği noktaları işaretleyelim.

Daha sonra noktaları çizgiler ile birleştirip grafiğimizi çizelim.

Grafik: Günlere Göre Hava Sıcaklığı
Sıcaklık (°C)

Günler

Figure 5. Textbook A

Hazır mıyız?

Bir okulda hızlı okuyan dört öğrencinin 1 dakikada okudukları kelime sayıları aşağıdaki tabloda verilmiştir.

Tablo: Öğrencilerin 1 Dakikada Okudukları Kelime Sayıları

Öğrenci İsimleri	Canan	Huzeyfe	Elif	Ahmet
1 Dakikada Okunan Kelime Sayısı	210	330	300	240

a) Verilere uygun sütun grafiği oluşturunuz.
b) Verilere uygun daire grafiği oluşturunuz.
c) Bu verileri yorumlamada kullanılacak en uygun grafik türü hangisidir? Düşününüz ve açıklayınız.

Figure 6. Textbook A

Although both textbooks have included information about the interpretation of graphs, it has been revealed that there is no information about how to relate these interpretations to the research question. Moreover, the interpretations were found to be directed to between the data interpretations while beyond the data

interpretations are not presented. On the other hand, the interpretations made were found to be in such a way as to bring the function of graphs to the fore (Figure 7,8).

Örnek

Yandaki tabloda bir otomobilin 5 saatlik süre içinde zamana bağlı olarak aldığı yol verilmiştir. Otomobilin zamana bağlı olarak aldığı yolu çizgi grafiği ile göstererek grafiği yorumlayalım.

Tablo: Otomobilin aldığı yol

Zaman (sa.)	1	2	3	4	5
Yol (km)	75	150	150	175	200

Çözüm

Tablodaki verilere göre (1, 75), (2, 150), (3, 150), (4, 175), (5, 200) sıralı ikililerine karşılık gelen noktaları düzlemde gösterelim. Bu noktaları yandaki gibi birleştirelim.

Otomobilin zamana bağlı olarak aldığı yoldaki değişimi aşağıdaki gibi açıklayabiliriz.

- Otomobil 1 ve 2. saatler içinde yetmiş beşer kilometre yol almıştır.
- Otomobil 2 ile 3. saat arasında hareket etmemiştir.
- Otomobil 4 ve 5. saatler içinde yirmi beşer kilometre yol almıştır.
- Otomobilin hızı ilk iki saat içinde en yüksek değerdedir.

Grafik: Otomobilin aldığı yol

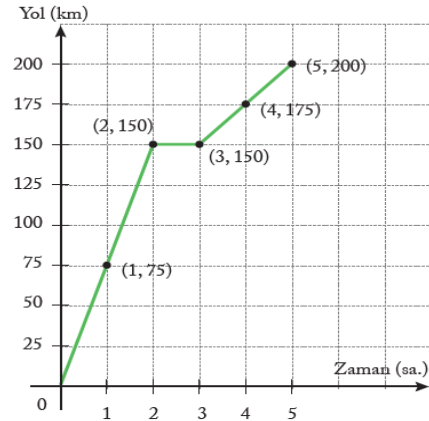


Figure 7. Textbook B



Sıra Sizle 6

Hayvan barınakları, sokak hayvanlarının sağlıklı beslendiği ve korunduğu yerlerdir. Bu gibi yerlerin oluşturulmasında sokak hayvanlarına yardım eden hayvanseverlerin ve sivil toplum kuruluşlarının önemi büyüktür.

Yandaki grafikte, A, B ve C hayvan barınaklarındaki hayvan sayıları gösterilmektedir.

Buna göre aşağıdaki soruların çözümünü altlarındaki boşluklara yapınız.

a) Barınaklarda hangi hayvan türünün sayısı en fazladır?

b) C barınağındaki köpek sayısı A barınağındaki köpek sayısından kaç eksiktir?

Grafik: A, B ve C Barınaklarındaki Hayvan Sayıları

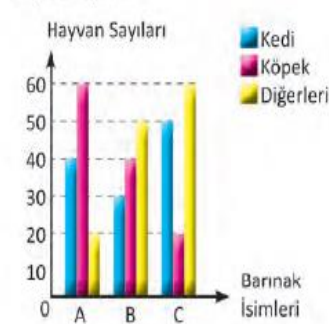


Figure 8. Textbook A

It was observed that the given activities and examples are not shaped around a context. The section giving information about what type of graph is appropriate to use within the framework of the formulated question is incomplete (Figure 9).

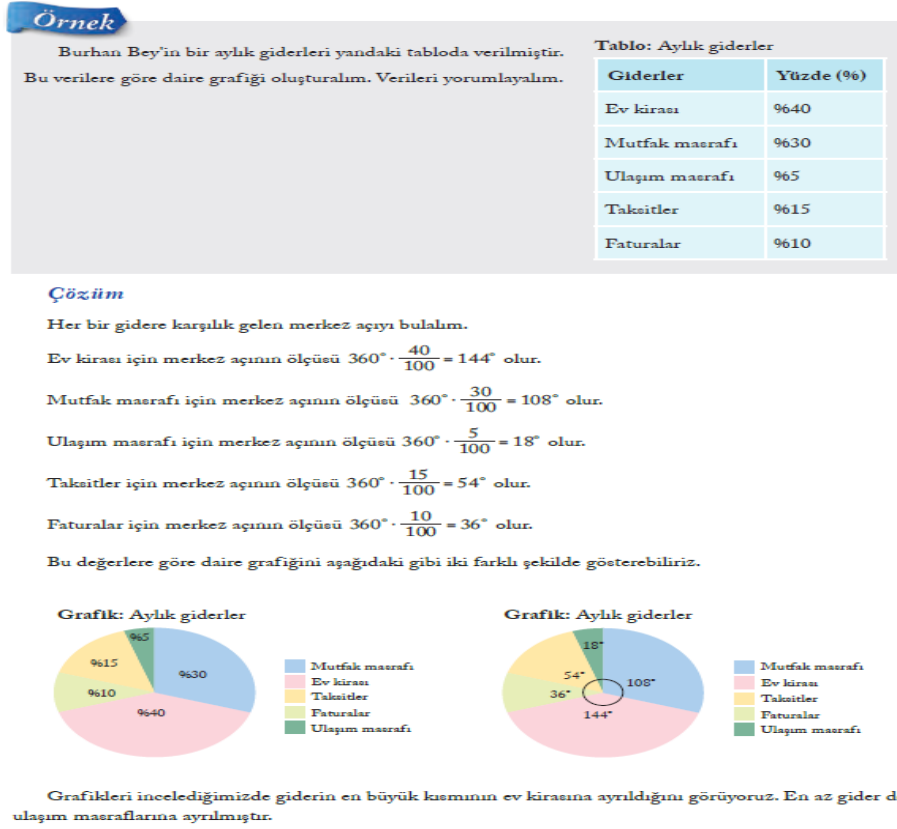


Figure 9. Textbook B

As shown in the example above, it is not clear why the data should be shown with a pie chart. This might result in students' making overgeneralization. Students might conclude that when it is %, then the pie chart must be used. In addition, it was observed that the part of associating with the formulated question is incomplete. A similar situation was observed in the textbook A. In the explanations given below, it is observed that there is an explanation indicating that the appropriate graph type should be decided only on the basis of data type. Though this statement is not false, it is incomplete (Figure 10).

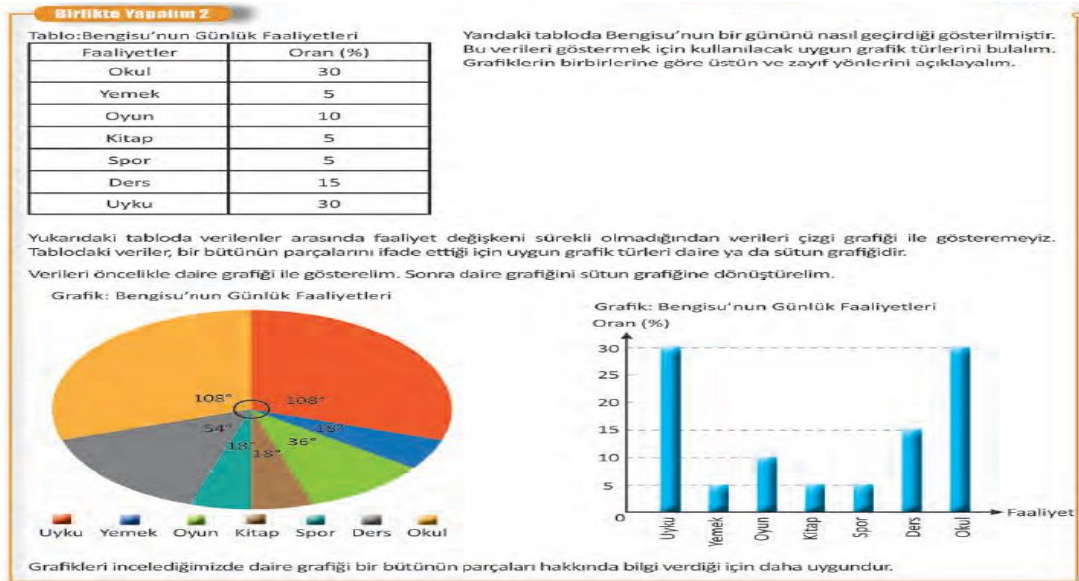


Figure 10. Textbook A

A similar situation was observed in the part related to the selection of the most appropriate type of graph. It is not clear why pie, line and bar charts were selected in the part explaining how the most appropriate graph should

be selected. It is not explained that this selection should be made depending on the formulated question (Figure 11).

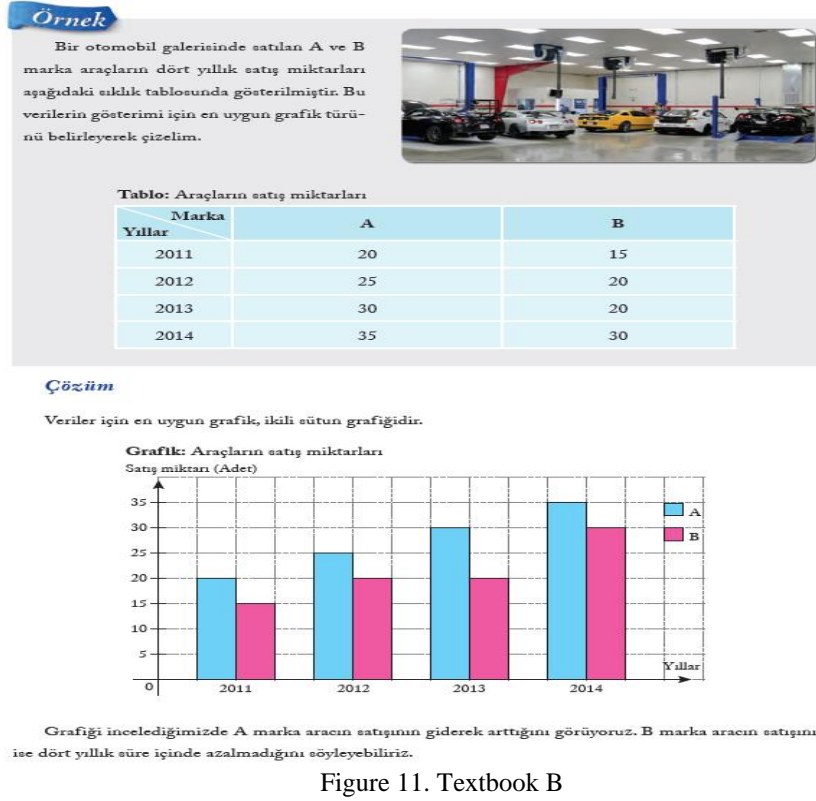


Figure 11. Textbook B

In the above given example, it is stated that the most suitable graph is the bar chart. Yet, it is not explained how this has been decided. In another example, though explanations are made about the different functions of graphs, it is not explained what kind of role these functions play; that is, the direct connection with the formulated question is not explained (Figure 12).

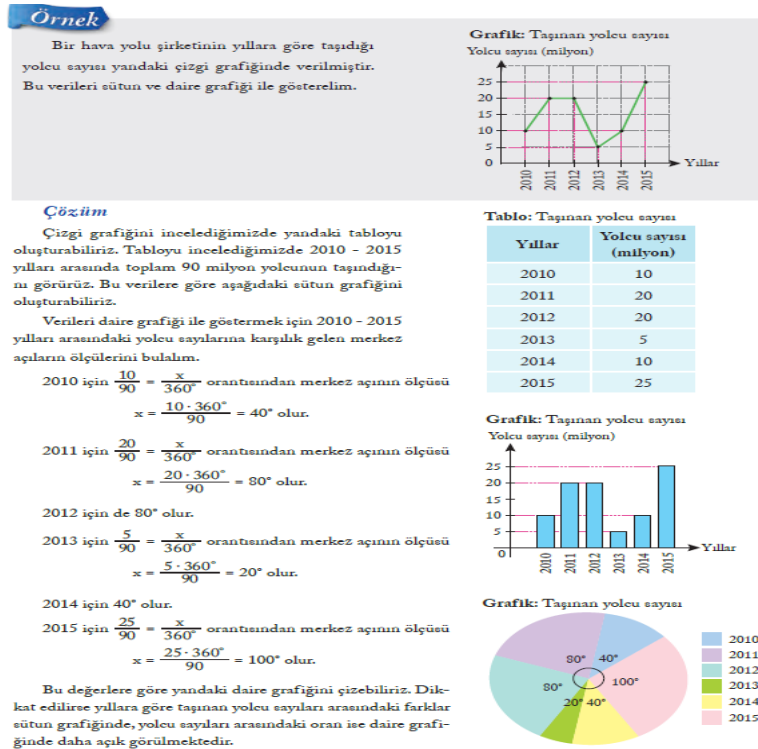


Figure 12. Textbook B

A similar situation is observed in the textbook A (Figure 13,14).

Sıra Sizde 3

Aşağıdaki tabloda, bir aracın 4 aylık benzin ve LPG kullanım miktarları verilmiştir. Tablodaki verilerin en uygun hangi grafik türü ile gösterilebileceğini bulunuz ve belirlediğiniz grafik türüne göre bir çizim yapınız.

Tablo: Aylara Göre Benzin - LPG Miktarları (L)

Aylar	1. Ay	2. Ay	3. Ay	4. Ay
Benzin	10	12	8	5
LPG	50	60	45	70



Figure 13. Textbook A

Birlikte Yapalım 5



Bir ortaokulun öğrencileri, "Oksijenimiz Tükenmesin" adlı bir proje ile ağaç dikme etkinliği düzenlemiştir. Aşağıda verilen tabloda, etkinliğe katılan sınıflardaki öğrencilerin diktikleri fide türleri ve sayıları gösterilmiştir. Buna göre verileri en uygun şekilde temsil eden grafiği çizelim.

Tablo: Dikilen Fide Türleri ve Sayısı

Fide Türleri / Sınıflar	5. Sınıflar	6. Sınıflar	7. Sınıflar	8. Sınıflar
Çam	40	80	50	70
Çınar	60	30	50	60

Tablodaki veriler arasında karşılaştırma yapıldığı için en uygun grafik türü sütun grafiğidir.

Grafik: Çam ve Çınar Ağacı Diken Öğrenci Sayılarının Sınıflara Göre Dağılımı

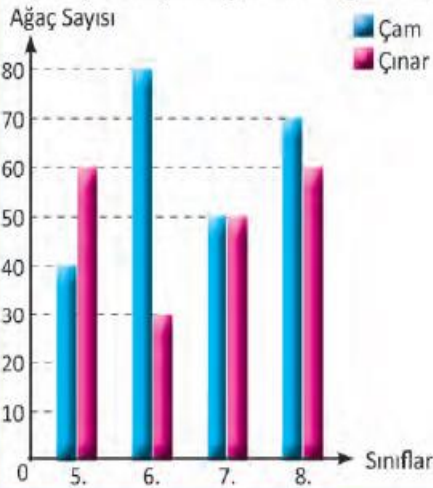


Figure 14. Textbook A

Conclusion and Recommendations

In this study, it was investigated how the doing statistics process of the explanations, questions and examples in the data processing learning area is addressed in the secondary school 8th grade mathematics textbooks approved to be studied in the 2018-2019 academic year. For this purpose, two 8th grade textbooks were

analyzed and evaluated according to the statistics making process emphasized in the secondary school mathematics curriculum (MONE, 2018b). Both of the textbooks were found to be deficient in terms of inclusion of the process of doing statistics. When the explanations in the introduction parts of the textbooks were examined, it was revealed that the explanations in the introduction part of the textbook A support the process of making statistics while the explanations in the introduction part of the textbook B are structured in such a way as to bring the data representation capacity of graphs to the fore. It is observed that the explanations about the graphs in the textbook B are structured in such a way as to emphasize the elements of graphs. It has also been revealed that the explanations in both of the textbooks are structured in such a way as to put greater emphasis on the functions of graphs. While some place is allocated to giving information about how to draw graphs in the textbook A, no information is given about the drawing of graphs in the textbook B. Although both textbooks have included information about the interpretation of graphs, it has been revealed that there is no information about how to relate these interpretations to the research question. Moreover, the interpretations were found to be directed to reading between the data interpretations while reading beyond the data interpretations are not presented. On the other hand, the interpretations made were found to be in such a way as to bring the function of graphs to the fore. It was observed that the given activities and examples are not shaped around a context. The section giving information about what type of graph is appropriate to use and when within the framework of the formulated question is incomplete. This can be argued to result in some difficulties and misconceptions for students (e.g., when it is percentage, a pie chart is always used; the temperature variable is always represented with a line graph). Furthermore, though explanations are made about the different functions of graphs in both of the textbooks, it is not explained what kind of role these functions play; that is, the direct connection with the formulated question is not explained. In the curriculum, it is emphasized that data processing learning area should be addressed on the basis of the doing statistics process (MONE, 2018b). Thus, it can be suggested that textbooks should be structured in such a way as to take this process into consideration.

References

- Alajmi, A. H. (2009). Addressing computational estimation in the Kuwaiti curriculum. Teachers' views. *Journal of Mathematics Teacher Education*, 12, 263–283.
- Alajmi, A., & Reys, R. (2007). Reasonable and reasonableness of answers: Kuwaiti middle school teachers' perspectives. *Educational Studies in Mathematics*, 65(1), 77–94.
- Arslan, S. & Özpınar, İ. (2009). İlköğretim 6. sınıf matematik ders kitaplarının öğretmen görüşleri doğrultusunda değerlendirilmesi. *Dicle Üniversitesi, Ziya Gökalp Eğitim Fakültesi Dergisi*, 12, 97-113.
- Aydoğdu-İskenderoğlu, T. & Baki, A. (2011). İlköğretim 8. sınıf matematik ders kitabındaki soruların PISA matematik yeterlilik düzeylerine göre sınıflandırılması, *Eğitim ve Bilim*, 36(161), 287-301.
- Beaton, A. E., Mullis, I. V., Martin, M. O., Gonzalez, E. J., Kelly, D. L., & Smith, T. A. (1996). Mathematics achievement in the middle school years: IEA's third international mathematics and science study (TIMSS). Boston, MA: Center for the Study of Testing, Evaluation, and Educational Policy, Boston College.
- Böge, H. & Akıllı, R. (2018). *Ortaokul ve İmam Hatip Ortaokulu Matematik 8. Sınıf ders kitabı*, Devlet Ders kitapları, Ankara.
- Cohen, L., Manion, L., & Morrison, K. (2007). *Research Methods in Education*. London: Routledge/ Falmer.
- Corbin, J., & Strauss, A. (2008). *Basics of Qualitative Research (3rd ed.):Techniques and Procedures for Developing Grounded Theory*. Thousand Oaks, CA: Sage Publications.
- Fan, L. (2013). Textbook research as scientific research: Towards a common ground on issues and methods of research on mathematics textbooks. *ZDM Mathematics Education*, 45(5), 765-777.
- Fan, L. & Kaeley, G. S. (2000). The influence of textbooks on teaching: An empirical study. *Mid-Western Educational Researcher*, 13(4), 2–9.
- Glenn A. B., (2009) Document Analysis as a Qualitative Research Method, *Qualitative Research Journal*, 9(2), 27-40.
- Grouws, D. A. & Smith, M. S. (2000). Findings from NAEP on the preparation and practices of mathematics teachers. In E. A. Silver & P. A. Kenney (Eds.), Results from the Seventh Mathematics Assessment of the National Assessment of Education. National Council of Teachers of Mathematics.
- Haggarty, L., & Pepin, B. (2002). An investigation of mathematics textbooks and their use in English, French and German classrooms: who gets an opportunity to learn what? *British Educational Research Journal*, 28(4), 567-590.
- Hirsch, C., Lappan, G., Reys, B., & Reys, R. (2005). Curriculum as a focus for improving school mathematics. *Mathematicians and Education Reform Forum Newsletter*, 18(1), 1-14.
- Howson, G. (1995). *Mathematics textbooks: A comparative study of grade 8 texts*. Vancouver: Pacific Educational Press.

- Johansson, M. (2005). Mathematics textbooks - the link between the intended and the implemented curriculum. Paper presented to "the Mathematics Education into the 21st Century Project" Universiti Teknologi, Malaysia. http://math.unipa.it/~grim/21_project/21_malasya_Johansson119-123_05.pdf, Retrieved from 2 February 2019.
- Kajander, A. & Lovric, M. (2009). Mathematics textbooks and their potential role in supporting misconceptions. *International Journal of Mathematics Education in Science and Technology*, 40(2), 173-181.
- Kişi, E. (2018). *Ortaokul ve İmam Hatip Ortaokulu Matematik 8. Sınıf ders kitabı*, Ekoyay, Ankara.
- Ministry of National Education (MoNE) (2018a). Taslak kitap incelemesinde esas olacak ölçütler. http://emufredat.meb.gov.tr/Dokumanlar/inceleme Kriterleri_30032018.pdf, Retrieved from 20 February 2019.
- Ministry of National Education (MoNE) (2018b). *Matematik Dersi Öğretim Programı (İlkokul ve Ortaokul 1, 2, 3, 4, 5, 6, 7 ve 8. Sınıflar)*. Ankara, Türkiye.
- Mullis, I.V.S., Martin, M.O., Foy, P., & Arora, A. (2012). TIMSS 2011 international results in mathematics. Chestnut Hill, MA: TIMSS & PIRLS International Study Center, Boston College.
- NCTM (2000). *Principles and standards for school mathematics*. Reston, Va.: NCTM.
- O'Sullivan, B. (2017) *An analysis of mathematical tasks used at second-level in Ireland*. PhD thesis, Dublin City University, Ireland.
- Reys, B. J., Reys, R. E., & Chávez, O. (2004). Why mathematics textbooks matter. *Educational Leadership*, 61(5), 61-66
- Schmidt, W. H., McKnight, C. C., Houang, R. T., Wang, H. C., Wiley, D. E., Cogan, L. S., Wolfe, R. G. (2001). *Why schools matter: A cross-national comparison of curriculum and learning*. San Francisco, CA: Jossey-Bass.
- Son, J. (2008). *Elementary teachers' mathematics textbook use in terms of cognitive demands and influential factors: a mixed method study*. Unpublished Doctoral Dissertation. Michigan State University, Michigan.
- Stodolsky, S. S. (1989). Is teaching really by the book? In P.W. Jackson & S. Haroutunian-Gordon (Eds.), *From Socrates to software*, 88th Yearbook of the National Society for the Study of Education (pp. 159-184). Chicago, IL: University of Chicago Press.
- Tarr, J. E.; Reys, B. J.; Barker, D. D.; & Billstein, R. (2006). Selecting high quality mathematics textbook, *Mathematics Teaching in the Middle School*, 12(1), 50-54.
- Törnroos, J. (2005). Mathematics textbooks, opportunity to learn and student achievement. *Studies in Educational Evaluation*, 31(4), 315-327.
- Ubuz, B., Erbaş, A.K., Çetinkaya, B. & Özgeldi, M. (2010). Exploring the Quality of the Mathematical Tasks in the New Turkish Elementary School Mathematics Curriculum Guidebook: the Case of Algebra. *ZDM Mathematics Education*, 42, 483-491.
- Weinberg, A., & Weisner, E. (2010). Understanding mathematics textbooks through reader-oriented theory. *Educational Study in Mathematics*, 76(1), 49-63.
- Weiss, I. R., Baniower, E. R., McMahan, K. C., & Smith, P. S. (2001). *Report of the 2000 national survey of science and mathematics education*. Chapel Hill, NC: Horizon Research, Inc.
- Wijaya, A., Van den Heuvel-Panhuizen, M., & Doorman, M. (2015). Opportunity-to-learn context-based tasks provided by mathematics textbooks. *Educational studies in Mathematics*, 89, 41-65.
- Yang, D., Sianturi, I. A. (2017). An Analysis of Singaporean versus Indonesian Textbooks Based on Trigonometry Content. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(7), 3829-3848.
- Valverde, G. A., Bianchi, L. J., Wolfe, R. G., Schmidt, W. H., & Houang, R. T. (2002). *According to the book: Using TIMSS to investigate the translation of policy into practice through the world of textbooks*. Dordrecht, Netherlands: Kluwer Academic Publishers.
- Van de Walle, J. A., Karp, K. S., & Bay-Williams, J. M. (2012). *Elementary and middle school mathematics: Teaching developmentally*. New Jersey: Pearson Education.
- Yıldırım, A. & Şimşek, H. (2011). *Sosyal Bilimlerde Nitel Araştırma Yöntemleri* (8. Baskı). Ankara: Seçkin Yayıncılık.

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