The use and impact of Goodreads rating and reviews, for readers of Arabic books

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Abstract: The focus of this research is to assess how the use of Goodreads can influence Arabic readers' selection of books, to study Arabic reviewers' behaviour and to explore the impact of Goodreads' metrics on book sales. Research methodology of the presented work consisted of a wide review of relevant literature, the collection and analysis of data from a questionnaire and a case study on a list of best-selling Arabic books fetched from two book-review platforms; Goodreads.com and Jamalon.com. The findings of the presented study show that Goodreads metrics reveal highly relevant indicators for books' contents, and consequently have a significant impact on Arab's book-purchasing decisions. Furthermore, we observed that Arabic Goodreads users tend to rate books rather than write reviews, and their book evaluation is mostly based on their contents. Primary research results suggest that, with proper analysis applied, Goodreads is an effective book evaluation network/online community for Arabic readers and Arabic book consumers. It is believed that the effectiveness of the studied network is mainly due to the metrics applied, which appear to be matching evaluation criteria as preferred by Arabic readers.

Keywords: Goodreads; online community; book reviews; Arabic book review; Arabic Goodreads; book rating; online bookstore; social network; Arabic lexicon; word-of-mouth recommendations; book sale; review economic impact.

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1   Introduction

Over the last ten years, there has been an increasing amount of studies concerning social media (SM) and its impact on society. Business people, especially data analysts and marketers, have a special interest in SM for its significant impact on both sellers and buyers. For example, SM may affect business value (Bekmamedova and Shanks 2014; Ketonen-Oksi et al., 2016; Trkman and Trkman 2018), customer behaviour (Rassega et al., 2015), customer purchase decisions (Hanaysha, 2018) and many other aspects of the business. In a recent study, to evaluate the influence of SM platforms on fashion consumer decisions in the UK retail sector, Nash (2019) found that "consumers use a variety of internal and external motivations that influence their behaviours and perceptions of high-street fashion retailers, and these factors are aided and facilitated by the use of SM." She also suggested that whilst SM platforms are not the only source to influence consumer decision-making, "they are (and will continue to have) an ever more increasing impact on consumer decision-makings."

Whilst the use of social networks has become a valuable tool to support enterprises to increase the chances of survival through the activation of a favourable word of mouth among the internal and external members of the virtual community, "the use of new information and communications technology allows a better flow of information and thus a greater connection between the different actors" Rassega et al. (2015), in reference to practices like 'online product-reviews'.

Book consumers, similar to other product consumers, use book reviews in order to make their choices for reading. Simply because habitual readers may face difficulties before they decide to purchase books; how can I select relevant books? What are the opinions of others about a book? How can I communicate with a publisher? These are some of the main questions, amongst others, which potential book consumers are concerned about before making their purchase. In effect, the most common type of review helps consumers decide whether or not to buy a book evaluate what they ought to pay attention to, spend time and energy on, pay money for.

One popular online community for book reviews is Goodreads[1], a book-based social network where users share books they have read, review and recommend books, rate books and connect with other readers (Thelwall and Kousha, 2017). That is, users can use

the network to create their own custom shelves, 'book lovers[2]' groups, create events and also invite other members to participate (e.g., book clubs) and explore reviews of listed books. Goodreads was officially launched in 2007 and later in March 2013 was acquired by Amazon (Owen, 2013). According to recent findings provided by *Quantcast.com*, there are 49.6 million global unique users every month, 55 million members, 1.5 billion books (Goodreads, 2017) and 50 million user-generated reviews on Goodreads (2016). The figures seem to be growing following a positive trend since its launch, that is, according to *Goodreads* homepage, the number of actual members is around 88 million.

Some considerable amount of work can be traced on the analysis and evaluation of *Goodreads*. Some studies evaluated whether Goodreads metrics can reflect the wider benefits of academic books for students and researchers (Kousha et al., 2017), the effect of word-of-mouth on Goodreads users (Huang et al., 2012) and the impact of reader reviews on book sales (Chou, 2016; Forman et al., 2008; Hu et al., 2014; Schneider and Gupta, 2016). That said, however, little attempt has been made to investigate Goodreads' impact in the Arabic context – Arabic books and readers – the suitability of its reviewing metrics and its influence on Arabic readers as well as on book sales. That is despite the dramatic growth of the use of Arabic language on the Internet, moving up to fourth place in the ranking of languages used on the web, according to Internet World Stats (2016).

The importance of the presented work within the field of SM networks, as an application of e-commerce in particular, becomes even more apparent when other researchers mourn the lack of relevant research on their impact, especially in the Arabic world. For instance, Elsayed (2010) highlights the 'absence' of research on the subject of book clubs and online discussions about books in Arabic, while Elnagar and Einea (2016) share similar views regarding the field of Arabic reviews and sentiment analysis, pointing out that:

> Little research work has been reported on sentiment analysis for Arabic text. Most of these studies use only local datasets and have 'small size when compared to benchmarked datasets used for English text.

The main focus of this research will therefore be to examine the use of Goodreads in the Arabic context, including the impact of its book reviews and ratings on Arabic readers and book sales. Whether the book reviews and ratings on Goodreads affect the purchasing decision of Arabic users, and whether they have an impact on Arabic book sales. Additionally, this paper will also explore how frequently do Arabic readers use Goodreads and for what purposes.

To gain a deeper understanding of the mentioned questions, two main activities will need to be carried out: firstly, a review of relevant literature to ascertain current research findings on Goodreads in general, including potential implications and empirical data collection on Arabic users' opinions about their Goodreads use and book-buying decisions. Secondly, in order to gain a meaningful picture of how Arabic readers make their book-purchasing decisions, including their use of Goodreads, it is important to place the impact of Goodreads' reviews and ratings on book-purchasing issues in the context of the wider picture of Goodreads' use and purchasing decisions in the Arabic world. Thus, the literature review will examine the impact of online book reviews and ratings on book sales and the behaviour of the Arabic book reviewers. Similarly, the empirical data, although focusing on Goodreads users only, will seek the views of Arabic readers and whether or not they use the site to air their views in a wider book-buying behaviour context.

Comment [ED1]: Author: Please provide full reference or delete from the text if not required.

In the following section, background and literature review are provided.

2   Background and literature review

A wide range of SM platforms allow users to publish reviews on local businesses such as Yelp and Yell, write recommendations about restaurants and share cooking tips with others on sites such as Neeach (a social network for foodies), write reviews of hotels, restaurants, attractions and other travel-related businesses on sites such as TripAdvisor. Nielsen (2015), in a large-scale (30,000 participants) global survey, found that 66% of the survey respondents trusted online product reviews posted by other consumers. Zhu and Zhang (2010) studied the impact of customer online reviews on sales (the case of video-game industry) and how product and costumer characteristics can moderate their effect. More recent studies explored the important role of customer online reviews on marketing, sales and on customer behaviour (Filieri et al., 2018; Li and Shimizu, 2018; Sreejesh et al., 2018; Zhang et al., 2019). Other research evaluated the cultural factor in determining the impact of online customer reviews on sales, as in "same sushi, different impressions: a cross-cultural analysis of Yelp reviews" of Nakayama and Wan (2018).

With the unprecedented reach of the technologies of SM and networks, there has been a dramatic increase in customers' use of social networks such as Goodreads and TripAdvisor, and online stores, such as Amazon and eBay. Online book reviews, for instance, help readers to source appropriate books. Traditionally, it has been argued that reviews are written by experts, scholars, or professional book reviewers (Ree, 2003). Nowadays, the development of book reviews has diversified: anyone can share their opinions about books on the Internet.

Online customer reviews can be defined as "peer-generated product evaluation posted on the company or third-party websites' and become helpful when this evaluation facilitates the customers" purchasing decisions (Mudambi and Schuff, 2010). Chen and Xie (2008) argue that it is "a type of product information created by users based on personal usage experience' and 'work as a free sales assistant to help consumers identify the products that best match their idiosyncratic usage conditions." According to Lin et al. (2005), online book reviews represent all readers' public comments and reviews on the websites of bookstores, publishers or private websites.

Although book reading can be a private experience, it can also be social: students can read together and discuss what they have consumed. Online book clubs and reading groups are a visible example of book-based social activities. In these environments, readers can share their book reviews or recommendations and 'satisfy their need to increase their knowledge, nurture their love of books, and share bonds of community' (Sedo, 2002).

2.1   Goodreads

In their analysis of the Goodreads user characteristics, Thelwall and Kousha (2017) found that while, for a few users, Goodreads is a book-based website and for some others, it is a general SNS, for most users, however, it is "a book-based social navigation SNS, with the user choosing their own blend of social and book-based activities" [Thelwall and Kousha, (2017), p.981].

A further investigation into the differences between Amazon and Goodreads reviews, by Dimitrov et al. (2015), found that Goodreads users write more reviews, the books on average have more reviews and the reviews are 'less invested in convincing readers to take a particular action (buy/not-buy)', whereas 'Amazon users write more purchase-oriented reviews' and tend to generate more 'extreme' reviews. However, the scope of this study is limited in terms of genre and language: it focused only on the biography genre and only on English reviews.

2.2 *Impact of online book reviews and ratings on book sales*

On the correlation between online book reviews and book sales, evidence suggests that customer reviews have become substantially significant in customer buying decisions and book sales. In the exploratory study of Ho Ha et al. (2015), a list of social platforms were examined to evaluate whether reviews (positive, negative, quantity, etc.) correlate to book sales. Reviews on the books of a book retailer were included in their analysis. Whilst their research confirms previous findings on that the number of 'product reviews represents product's popularity', in general, yet they also found that 'only when the quantity of positive reviews was large enough to overcome negative attitudes from negative reviews and heighten consumers' purchase intentions'.

Hu et al. (2014) examined the interrelationships between ratings, sentiments and sales of books on Amazon. They found that the ratings have an indirect impact on book sales ranking, while review sentiments (such as 'excellent' and 'awesome' for positive sentiments, and 'awful' and 'terrible' for negative sentiments) have a significant direct impact on them. Also, the reviews marked 'most helpful' and the most recent reviews also affected book sales. However, the major limitation of this investigation is its limited scope; about 4,000 books were examined.

Unlike Hu et al. (2014), Ghose and Ipeirotis (2011) argue that the subjectivity level, readability and the extent of spelling errors (the review style) affected a review's impact on product sales. Similarly, in another study, they found that users considered reviews containing a mixture of subjective and objective content more helpful (Ghose and Ipeirotis, 2007). Future studies should be aware of the limits on the accuracy of these findings as a result of text-mining tools used to extract sentiments.

In the same vein, Chevalier and Mayzlin (2006) described the manners of reviewer behaviour and examined the effect of user reviews on relative sales of books by Amazon.com and Barnesandnoble.com. They found that customer word-of-mouth affects consumer purchasing behaviour and an increasing number of book reviews leads to an improvement in relative sales. With respect to the impact of product rating on sales, they found that the average star rating influences sales and the impact of one-star reviews are greater than the impact of five-star reviews. However, they do not consider the effect of retailer recommendations, which can also potentially affect customer demand. In their comprehensive investigation into the impacts of retailer recommendations and consumer feedbacks on sales at Amazon, Chen et al. (2004) concluded that the number of customer reviews improves sales, whereas book ratings do not have an impact on sales. Also, recommendations work well for less-popular books as "a consumer's search costs for less-popular books may be higher; thus, they may rely on recommendations to locate a product in which they are interested."

People usually refer to the opinion of others before spending on some products about which they are uncertain. According to Schubert and Ginsburg (2000), feedback from other consumers leads to an increased level of trust and can confer a higher degree of confidence on the customers' purchasing decisions. Despite this, a large number of reviews and the average book rating may render it more difficult for individuals to make a decision about purchases and evaluate the true quality of a product. In a study conducted by Hu et al. (2006), the majority of online product reviews was observed to have a bimodal and non-normal distribution. This means most of the product reviews are either assigned an extremely high rating or an extremely low rating and the average score 'does not necessarily reveal the product's true quality and may provide misleading recommendations'. Further research on Goodreads needs to be conducted to establish whether book reviews reveal the actual content of the books.

Furthermore, the number (quantity) of online reader reviews may affect book sales. Chevalier and Mayzlin (2006) also found that short reviews (40 words) have a significant impact on sales of books.

However, other factors, beyond online reader reviews, also affect book sales. Both price and star ratings play important roles related to the sales of books (Chevalier and Mayzlin, 2006). Chatterjee (2001) found that product prices, online consumer reviews and retailer familiarity were significantly related to consumers' buying intentions. Also, the relative sales ranking, review sources, shipping time and popularity of the author may affect the sales. According to Ha et al. (2015), "online consumer reviews that came from different sources had differential impacts on product sales" and "the manner by which consumers used online consumer reviews varied with the source of reviews."

2.3   Goodreads: the Arabic context

Substantially, less study have investigated Goodreads in the Arabic context; explored herein. In an work on sentiment analysis of Arabic readers about books on Goodreads, Aly and Atiya (2013) created a large-scale dataset of Arabic book reviews (LARB), including 63,000 book reviews gathered from the Goodreads website, to explore sentiment polarity classification to determine whether a review is positive or negative and rating classifications to predict the review rating on a scale of 1 to 5. Nabil et al. (2014) extended their previous study by performing a comprehensive analysis of a large set of book reviews and constructing a sentiment lexicon from the dataset of Arabic book reviews: this was larger than the previous dataset and explored its properties and effectiveness. However, both studies covered only the domain of book reviews, using very simple classifiers for sentiment polarity classification and rating classification. In addition, they did not consider whether the book reviews have an impact on readers' purchase of a book and the extent to which these reviews affect book sales.

Similarly, ElSahar and El-Beltagy (2015) generated large multi-domain datasets for sentiment analysis in Arabic corpus. These datasets cover users' reviews of hotels, restaurants, films and product domains, which were used to build sentiment lexicons for each generated dataset. The main limitation of this study is that the datasets were generated from user reviews only and, echoing the previous two studies, it does not engage with the influence of reviews and recommendations on user attitudes.

More broadly, Elsayed (2010) carried out an investigation into Arab online book clubs and their performance. The study was conducted in the form of a survey, with in-depth analysis of the characteristics, membership, discussion, services, promotion and

evaluation of the clubs. She found that Arab online book clubs provided a helpful environment for promoting reading and motivated people to exchange ideas, despite low participation and lack of services provided to members. The study also shows that Arabic librarians and publishers do not work with these clubs, despite the fact that more young people in the Arabic world are regularly accessing them. Although this study provides useful information about Arab online book clubs, it was limited in scope. Moreover, the survey did not include the Arabic reader groups on Goodreads.

In general, most studies in the field of Arabic products reviews of these online sites have mainly focused on sentiment analysis and have not dealt with their impact on customer behaviour and product sales, especially in the domain of book sales. Collectively, these studies outline a critical role for online book reviews, especially for Goodreads, on reader behaviour and highlight the need for further investigation into the impact of Goodreads's book reviews, recommendations and ratings on user purchase decisions and book sales.

To arrive at a deeper understanding of how Arabic speakers use Goodreads and to what ends, empirical research will be implemented. Specifically, the research will attempt to find out how Arabic readers use Goodreads' reviews and ratings, what motivates them to do so and, from a wider perspective, the impact of Goodreads reviews, recommendations and ratings on book-purchasing decisions. The next stage of this research will detail the research methods to be used to capture the empirical data, including details of the research strategy to be adopted, data collection techniques, sample selection and management of the researcher's role.

3   Methodology

The previous section identified a gap in existing research in that there was ample evidence concerning the impact of book reviews and ratings on readers and sales. An important contribution of this research work will be the study and analysis of the impact of Goodreads reviews and ratings on Arabic readers and book sales. Although a focus of the empirical work will be to gather data on Goodreads.com, data will also be collected on Arabic readers' views on their use of the site, thus providing the opportunity to assess whether the site's reviews and ratings affect their book-purchasing decisions.

This paper is interested in capturing quantitative data. As such, the use of e-mail questionnaires alone, although useful in gathering qualitative data, would not satisfy the researcher's desire for detailed study of the relationship between Goodreads activities and book sales. That, in turn, would make it difficult for the researcher to compare the findings in any meaningful way to the findings from the literature review. Any strategy on a way forward, with regard to Arabic readers activities on Goodreads, would be significantly weakened by the lack of quantitative data from a case study.

3.1   Data collection

Quantitative data was obtained primarily through the vehicle of the questionnaire.[3] This opens the opportunity to investigate Goodreads and its impact on book sales issues in depth. However, in order to establish a framework around the questionnaire, it was structured with closed-ended questions prepared beforehand, but it also poses some

questions with an open-ended choice, thereby allowing respondents to express their views.

The questionnaire was divided into three sections (themes), each section linking directly to the initial research objectives. The first section seeks to collect the demographic information about the respondents, such as gender and homeland, and whether they have a Goodreads account. The next section contains specific questions only for those who have an account on Goodreads. The final section contains general questions for all concerning their book-purchasing decisions. Google Forms tool was used to create the questionnaire. It has many apt features, such as catering for an unlimited number of responses and a large number of questions.

The second data collection technique is the web scraping and data processing tool, Dexi.io. It was used to extract the target data from Goodreads.com. The collected data contains the titles, the authors' name\s, the average ratings (number of stars), the total number of ratings and the number of reviews for each of the most popular Arabic books from the (popular Arabic books) shelf on Goodreads.

Next, to establish whether the number of Goodreads reviews and ratings have an impact on book sales, the third objective of this study, a comparative study of top Arabic recommended books and top 100 best-selling Arabic books, was addressed. In order to find out the best-selling books, the Arabic online bookstore, Jamalon website, was consulted.

An opportunity sampling of Arabic readers, regardless of whether or not they are Goodreads users, was recruited for this study. The main data collection technique for this study is a representative questionnaire. The use of questionnaires is therefore appropriate to this research because they allow the opportunity to investigate a variety of Arabic people within a focused framework (to assess how the use of Goodreads can influence Arabic readers' selection of books). Thus, it is used to gather the opinions of Arabic people, focusing on those who use Goodreads, in order to address the first and second objectives of this study. It was conducted by publishing a questionnaire through social networks and text messaging applications: the respondents could answer at their convenience if they were willing to take part.

To establish whether Goodreads recommendations have an impact on book sales, a comparative study of the top recommended and the bestselling books was used. In order to discover the best-selling books, the Arabic online bookstore, Jamalon.com, was consulted. It is "the largest online bookstore in the Middle East, offering more than 9.5 million titles of Arabic and English books with home delivery" (Jamalon.com, 2017). So, the data was gathered from two sources: the (popular Arabic book) shelf on Goodreads, which contains 5,000 books; the (top 100 selling books for 2015) page on Jamalon.com. The data from Goodreads contains the book titles, authors' names, number of reviews, number of ratings and average ratings (number of stars). Following this, the samples were compared with the best-selling books on jamalon.com and the Goodreads' data was used to support the findings of the questionnaire. This means that the subjects under the study have not been chosen at random and that there can, therefore, be no claim to achieving a representative sample of the most popular Arabic books and best-selling books.

In terms of analysis, there will be a two-pronged approach: first, questionnaire results will be described and analysed; second, case study findings will be described and analysed, then comparing the findings from both sources against each other. However, relevant literature review findings will also be compared and contrasted against the empirical data findings.

4   Findings and discussion

This section reveals the results of the survey and the case study (most popular Arabic books on Goodreads) described in Section 3: methdolology. In order to assess the impact of Goodreads' reviews and ratings on their Arabic users and their behaviour in buying new books, the structured questionnaire was used. The correlation between top Arabic books on Goodreads and top book sales was also explored through the vehicle of a comparative study between the top 300 of 'popular Arabic books' on Goodreads and 'top 100 selling books for 2015' on Jamalon.com.

4.1   Survey findings

The survey is approached in a highly structured way. First, the participants were provided with a brief description of the research aim and objectives. Second, the questionnaire was divided into three sections: demographic and general questions, Goodreads user behaviour and book-purchasing decision. The gathering of empirical data for this research is based primarily on a survey, to allow an analysis of issues in a set context. The transcripts of the questionnaire can be explored on https://goo.gl/dEvZcP.

Of the study population, 450 subjects completed and submitted the questionnaire during 38 days, from 14 June to 22 July. The questionnaire has three sections. The obtained outcomes of questionnaire can be accessed here: https://goo.gl/dEvZcP.

4.1.1   Demographic and general questions

The survey population gender distribution was 56% female and 44% male. Regarding the age distribution of the respondents, Figure 1 presents the percentages of the respondents according to their age groups: almost three-quarters of participants (73%) were aged 18–24 and 25–34 (32% and 40%, respectively).

In order to make sure that the data is representative, the subjects were asked to indicate their homeland. The responses were collected from all Arab countries; those where the Arabic language is their first language. Just less than half the sample (48%) was from Saudi Arabia. The next largest number of respondents was from Egypt (12%) followed by Syria (9%).

Before investigating Goodreads' user behaviour, the respondents were asked about which website/websites they prefer for Arabic book reviews and ratings. Of 460 respondents, 340 subjects use Goodreads as the main site when they want to read what others have stated about books and book ratings. Social networks, such as Twitter and Facebook, were located in the second position.

Figure 1   Respondents' age groups (see online version for colours)
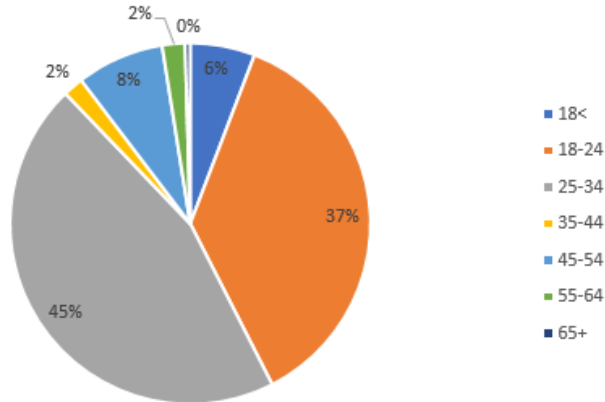
4.1.2   Goodreads user behaviour

325 users of Goodreads responded to the question: 'how often do you write your reviews about books or rate books on Goodreads?' 42% of the respondents indicated that they write reviews or rate books on Goodreads every few weeks and 24% do so less often (Figures 2 and 3).

Figure 2   How often do Arabic readers write reviews or rate books on Goodreads? (see online version for colours)
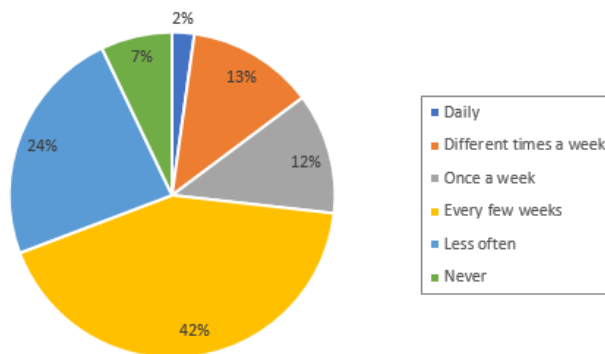

More broadly, the respondents were asked to indicate how often they use Goodreads, in general; for example, to communicate with their friends on the website or to organise their bookshelves. The pie chart in Figure 3 shows the results obtained from this question. Interestingly, 35% of the respondents use Goodreads on a daily basis, and 72% are either daily active users or visit the site at different times in the week.

In order to address the behaviour of Goodreads users, the subjects were asked about their usual activity/activities on Goodreads. The question is multiple-choice, which allows participants to select more than one answer, and has three default choices; two of

them related to book reviews 'summarising books or quoting from books' and 'writing arguments for or against buying books' and the third-choice answer is 'rating books'. Of the 413 responses to this question, the largest number of those who responded to this question (256 respondents) indicated that they usually rate books, 113 are more interested in discussing books while only 44 are interested in the book-purchasing aspects.

Figure 3 How often do Arabic readers use Goodreads, in general? (see online version for colours)
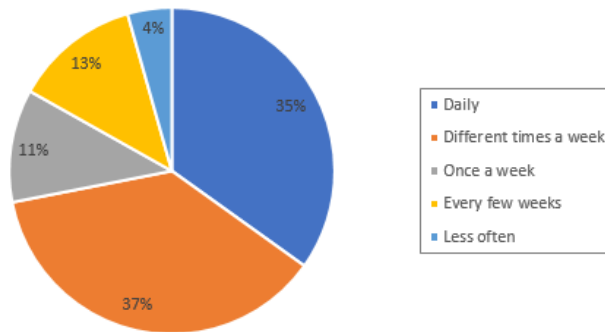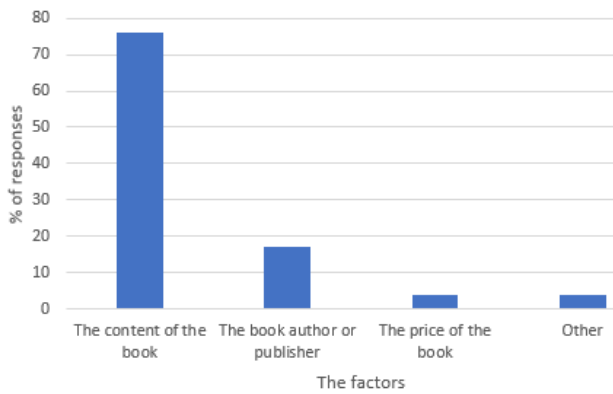

To establish whether the friends on Goodreads influence each other in buying books, the participants were asked 'agree/disagree' questions using the Likert scale. They were given this sentence 'I believe that the books recommended by my friends on Goodreads inspire my book-purchasing decisions'. The bar chart in Figure 4 illustrates to what extent the respondents agree with the statement. Just over half of those who responded to this question expressed the belief that the recommendations of their friends on Goodreads affect their decisions related to buying a new book, with the modal response of 'agree'. Results suggest that friends' book recommendations have a large impact on book-purchasing decisions and, consequently, on book sales.

Figure 4 To what extent do you agree or disagree that the books recommended by your friends on Goodreads inspire your book-purchasing decisions? (see online version for colours)
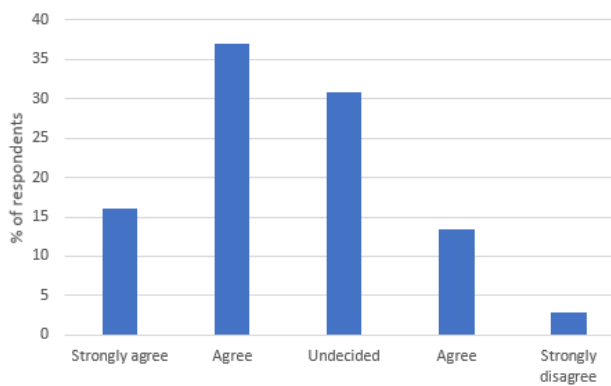
A further question of the questionnaire sought to identify the main factors that have an impact on Goodreads users when writing reviews or rating books. In response to the question: 'what is the main factor/s that often influence you when writing reviews or rating books on Goodreads?', as shown in Figure 5, most of those surveyed (76%) indicated that the book content is the major factor that often affects them when writing reviews or rating books on Goodreads. The second factor, based on the number of responses, is the author/publisher of the book. The feedback from the respondents suggests that neither the author nor the price is the main factor on which Goodreads users base their reviews or book ratings.

Figure 5   What are the main factor/s that often influence you when writing reviews or rating books on Goodreads? (see online version for colours)

To establish whether Goodreads's reviews and ratings reveal the true quality of the book, the participants were asked: 'do you trust book reviews and ratings on Goodreads?' Results in Figure 6.

Figure 6   Do you trust Goodreads reviews and ratings (the reviews and ratings reveal the true quality of the book)? (see online version for colours)
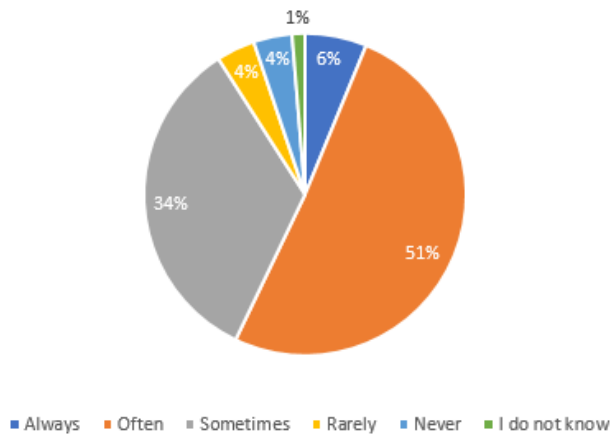
Approximately half of those surveyed indicated that Goodreads' reviews and ratings reveal the real quality of the books. Just over a third of the respondents (34%) reported that they sometimes trust the book reviews and ratings on Goodreads. Overall, this result suggests that Goodreads is a reliable reference for those who want to see the opinions of other readers before buying a new book.

More specifically, to assess the effect of Goodreads' reviews and ratings on readers, participants were asked to what extent they believe that book reviews and ratings on Goodreads affect (either positively or negatively) their book-purchasing decisions. The mean response was 2.6, between 'agree' and 'undecided', and the modal response was 'agree'. Only 4% of respondents strongly disagree that Goodreads' reviews and ratings have a significant impact on their buying decisions, whereas 38% agree and 13% strongly agree (Figure 7).

Figure 7   To what extent do the respondents agree that book reviews and ratings on Goodreads affect their book-purchasing decision? (see online version for colours)
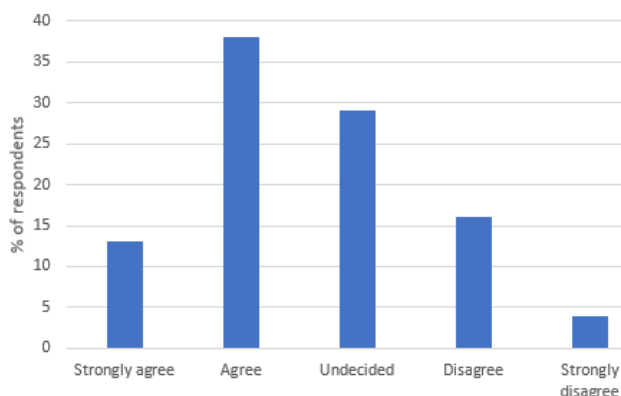
To establish whether book recommendations on Goodreads affect its users, the participants were asked to what extent do they agree with this statement: 'I believe that the books that are *recommended by Goodreads or by Arabic readers' groups on Goodreads* inspire my book-purchasing decision'. As shown in Figure 8, 46% of respondents agreed that Goodreads book recommendations affect their purchasing decisions. Only 18% of respondents disagree with the statement (14% disagree and 4% strongly disagree). The results from this and the previous questions were expected, reflecting how greater Goodreads' activities and metrics affect Arabic readers' book-purchasing decisions.

Interestingly, the modal response was 'agree' when question intended to explore the impact of 'friends' reviews' on book purchase decision-making (refer to results in Figure 4), whereas a modal response of 'undecided', as shown in Figure 8, is obtained when question sought to correlate book purchase decision-making based on both Goodreads editors and friends' reviews. A comparison of the two results reveals the extent to which book recommendations on Goodreads is having a large impact on the book-purchasing decisions in the Arabic context. It also can be observed that the impact of Goodreads friends' recommendations is greater than the impact of the book recommendations from the site's editors and Arabic groups.

Figure 8   To what extent do the respondents agree that the books recommended by Goodreads or by Arabic readers' groups on Goodreads inspire their book-purchasing decision? (see online version for colours)
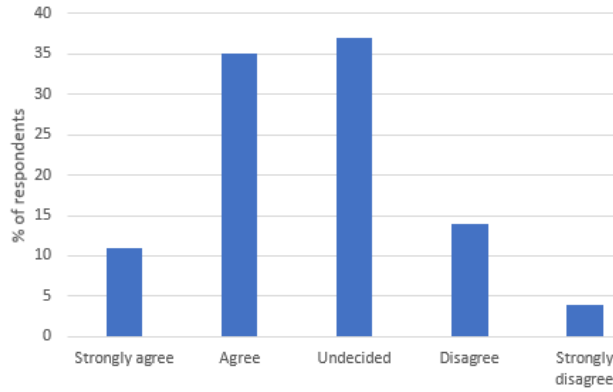
The final question of the survey was attempting to determine whether Goodreads' reviews or ratings have a significant impact on the book-purchasing decisions of its users. The majority of those surveyed (62%) indicated that both book reviews and book overall ratings (number of stars) affect their attitude when they use Goodreads to search about a particular book that they want to buy. The most striking result to emerge from the data is that only 12% of the respondents trust the overall book ratings alone and decide to purchase a new book accordingly (Figure 9).

Figure 9   Which Goodreads' metric has a significant impact on its users' book-purchasing decisions? (see online version for colours)

■ The overall book rating   ■ The book reviews   ■ The book rating and reviews

Taken together, these findings provide important insights into Goodreads user behaviour and the effects of Goodreads' reviews, recommendations and ratings on Arabic users. The results from the survey suggest that there is a strong association between Goodreads metrics or activities and a book-purchasing decision. Results also suggest that book

purchase decision-making is much more correlated to provide readers' reviews than to those provided by book publishers and editors.

In conclusion, it is clearly apparent that Arabic readers appreciate the contents provided in Goodreads, and results suggest, unsurprisingly, that their book-purchase decision-making is correlated to the reviews provided by its community. That said, however, the study is limited to conclusions which can be drawn from a generic exploratory analysis, especially given that questions were related to books, in general, not to specific categories, publishers, years, location-popularity metrics, etc. Therefore, the obtained findings whilst strongly suggest that the metrics used by Goodreads satisfy general Arabic book-readers, and can help them in their purchase decision-making, further work should explore how such metrics are distributed in relation to their relevance and influence, considering specific categories of books based on genre, location-specific features (popularity, coverage, etc.) and publication year, besides further factors as price, expected time for delivery, amongst others.

4.2   Case study and findings

To validate studied hypothesis in relation to the correlation between the book reviews and book sales, a set of analyses to examine the impact of the Goodreads' reviews, recommendations and ratings on book sales is presented. The aim is to explore potential matching between books in two datasets; popular Arabic books on Goodreads and best book-selling on Jamalon.com.[4] Table 1 shows the books in the two datasets, popular on Goodreads and have high demand on Jamalon.com, sorted according to their popularity (ranking on Goodreads).

We can see from Table 1 that just over a third (35 books out of a list of 100 – complete list of books can be found on Jamalon's page for the 100 bestselling books of 2015, access is also provided here: https://goo.gl/zkW4LN) of the bestselling books for 2015 on Jamalon.com are also popular on Goodreads. The lowest-ranked book has 3.3-star rating, the highest number of ratings has over two million and the highest number of reviews is 45,235, both for the same book (1984). The average number of those who rated these books is 76,898 and 3,483 is the average number of reviewers.

The results from the datasets, as in Appendices B (Goodreads first 300 ranked books) and Appendix C (bestselling list of 100 books in the Arab world) – provided online here: https://goo.gl/zkW4LN, will now be compared to the findings of the survey, which was analysed in the previous section. As shown in Table 1, Goodreads users tend to rate books rather than write reviews. The average user (review) rating for the 300 most popular Arabic books on Goodreads was found to be 4.01 – considering that top ranked books are chosen here.

The number of rates as obtained from the Goodreads dataset is 21,598, whereas for reviewers the figure is only 4,039, which means Goodreads users tend to rate books almost five times more than write text reviews. Interestingly, these results further support the survey finding, regarding the usual activity of Goodreads users on the website. The majority of participants (79%) indicated that they often rate books rather than write reviews, or both rate and write reviews.

Table 1   Arabic books on the 'popular Arabic books' shelf in Goodreads and best selling for
2015 in Jamalon.com

ID	Book title	Average rating (Goodreads)	# Goodreads ratings	# Goodreads reviews	Goodreads ranking
1	ساق البامبو	4.25	39,545	7,047	1
2	الأسود يليق بك	3.72	52,130	5,447	2
3	الفيل الأزرق	3.8	54,258	5,768	3
4	ثلاثية غرناطة	4.29	28,802	5,450	4
5	أولاد حارتنا	4.09	16,998	1,961	7
6	أحببتك أكثر مما ينبغي	3.67	42,215	4,885	11
7	حوار مع صديقي الملحد	3.95	26,174	2,537	12
8	الطنطورية	4.32	15,488	2,987	13
9	في قلبي أنثى عبرية	4.04	28,777	4,509	24
10	فئران أمي حصة	4.19	7,066	1,748	34
11	فلتغفري	3.50	24,494	2,821	37
12	كبرت ونسيت أن أنسى	3.68	8,322	1,475	41
13	مهزلة العقل البشري	4.0	6,817	1,005	51
14	وعاظ السلاطين	4.05	5,620	945	59
15	الإسلام بين الشرق والغرب	4.46	6,565	1,220	63
16	عزازيل	4.07	40,377	4,662	66
17	أقوم قيلا	3.99	9,810	1,484	68
18	حياة في الإدارة	4.47	6,528	1,185	79
19	في ديسمبر تنتهي كل الأحلام	3.33	17,360	2,018	84
20	التيه (خماسية مدن الملح)	4.07	2,675	400	92
21	خرائط التيه	4.17	3,629	1,129	101
22	رحلتي من الشك إلى الإيمان	4.03	17,630	1,677	103
23	خوارق اللاشعور	3.96	5,062	751	108
24	رسائل غسان كنفاني إلى غادة السمان	3.82	6,318	1,184	118
25	المهمة غير المستحيلة (كيمياء الصلاة)	4.07	5,911	1,146	130
26	العرب وجهة نظر يابانية	3.33	3,862	896	145
27	حبيبتي بكماء	3.3	13,401	1,670	151
28	القوقعة: يوميات متلصص	4.31	7,951	1,569	194
29	سأخون وطني	3.96	4,401	535	200
30	اخلع حذاءك	3.88	2,359	310	205
31	يسمعون حسيسها	4.37	5,915	1,302	207
32	البوصلة القرآنية	4.29	2,316	455	235
33	الرجال من المريخوالنساء من الزهرة	3.52	129,111	4,179	289
34	1984	4.14	2,040,751	45,235	290
35	تثريب	3.83	2,779	323	291

Note: Formal translation of the provided list of books can be found in Appendix A:
     https://goo.gl/zkW4LN.

Although not all the books in Appendix B appear on the best-selling page on Jamalon.com (Appendix C), most of them, however, have high purchasing figures in a range of bookstores and other online booksellers, and some of them have won major book awards. For instance, 'الأفعى ظـل' (*Shadow of the Snake*), 'نـراب ألـماس' (*Diamond Dust*) and 'الـذبطي' (*Al-Nabati*) novels are best-sellers and some of them were translated into other languages, according to their publisher Dar El-Shorouk.

Further analysis was carried out to explore the characteristics of Arabic reviews, in particular – ratings to be included for comparison. On a larger corpus of 6,000 reviews obtained from Goodreads on Arabic books, we found that most reviews provided tended to be of short length – sizes less than 1,000 characters, see Figure 10. In exploring the syntactical composition of the provided reviews, so that we could include a sentiment polarity component into our analysis of the reviews, we found that the majority of high rated books had lower review length, on average, Figure 11. The resulting distribution led to further need to examine the sentiment component of the evaluated reviews, so that we can evaluate whether ratings provided on Goodreads reflect certain 'forms' of reviews.

Figure 10　Distribution of review length – on 6,000 randomly selected reviews on Arabic books from Goodreads
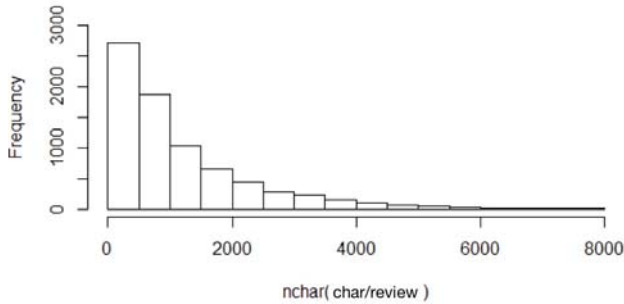
In order to conduct such analysis, we used the sentiment composition lexicon of negators, modals, and adverbs (SCL-NMA)[5] for general Arabic sentiment analysis (Kiritchenko and Mohammad, 2014; Kiritchenko et al., 2016). SCL-NMA contains ~3,200 terms and provides sentiment scores for two- and three-word expressions as well as scores for their constituent words.

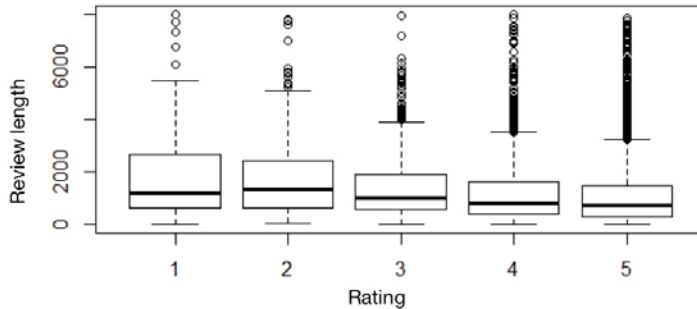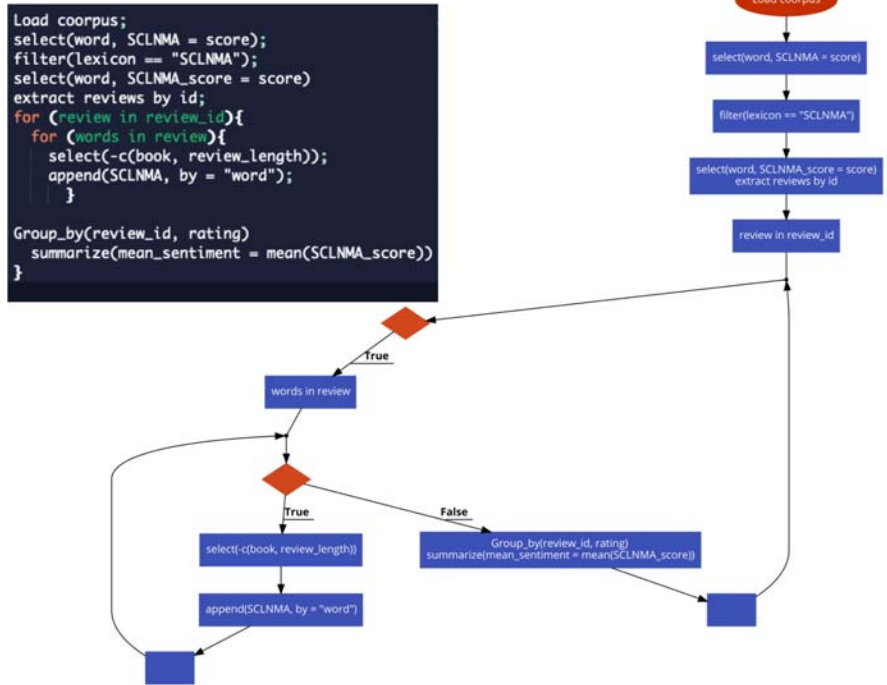**Figure 11**　Distribution of review length by rating

Figure 12   Sentiment analysis flow-chart and pseudocode on Arabic Goodreads reviews
(see online version for colours)


```
Load coorpus;
select(word, SCLNMA = score);
filter(lexicon == "SCLNMA");
select(word, SCLNMA_score = score)
extract reviews by id;
for (review in review_id){
  for (words in review){
    select(-c(book, review_length));
    append(SCLNMA, by = "word");
    }

Group_by(review_id, rating)
  summarize(mean_sentiment = mean(SCLNMA_score))
}
```

Note: Boxes without caption refers to conditional statement corresponding to instruction
loops.

We then developed a filtering method through which all reviews are scanned and evaluated in terms of positivity and negativity, within an interval [–1, 1], being 1 = 'very positive' and –1 = 'very negative'. Subsequently we calculated the arithmetic mean for the reviews corresponding to each book. In Figure 12, we show the flow-chart of the processing with a pseudocode. The filtering considered the occurrence of negators like "غير [not worth], "ليس رائع" [not/no good], "ال يستحق" [very bad], "سيئ جدا" "مناسب" [not suitable] besides their counter positive lexicon. In Table 2, we show a header sample of the resulting scores for the reviews of the analysed corpus.

Table 2   Score results per term are provided and mean sentiment score for each review is calculated

Review_ID	Word	SCL_Score	Review_ID	Rating	Mean sentiment
1	'جيد'	0.572	1	3	0.762
2	'رائع'	0.973	2	5	0.919
…		…	…	…	…
2,037	'ممتاز'	0.770	2,037	4	0.808
3,152	'سيئ'	–0.681	3,152	2	–0.760

The resulting mean scores for the reviews are then compared to the ratings for each review – see Figure 13. As a result, one can clearly observe a match between highest review ratings with review 'positive' polarity, and vice versa. Whilst this appears to be a valid conclusion, yet it is apparent that the average sentiment score is hardly distinguishable between close rating values. However, users tend to rely largely on the reviews provided for books in their purchase-decision making. A result that is supported by the analysis provided in the survey, which also seems to be consistent with the findings by Hu et al. (2014), who conducted a survey for Amazon.com users. They found that 58% of the respondents reported that book star ratings are important when they search and explore books, whereas 65% felt that text sentiments become more significant and have a large impact on them when they decide to purchase books.

Figure 13   Sentiment mean score for reviews per rating
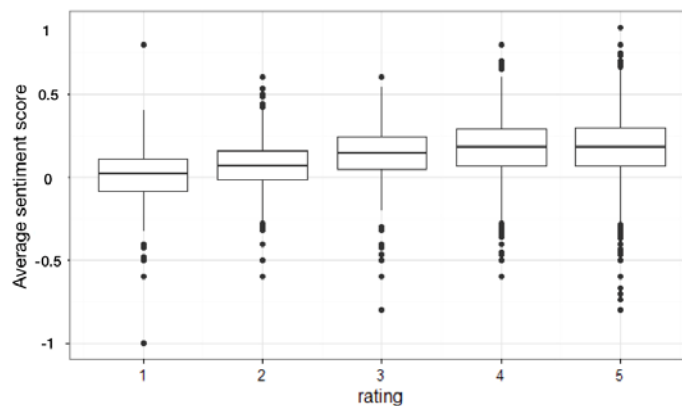
5   Conclusions

The overall aim of this study was to assess how the use of Goodreads can influence Arabic readers' book selection. The first main conclusion that can be drawn from this research on these issues – Goodreads' reviews, ratings and book-buying behaviours – is that Goodreads is a trustworthy social network site for book quality discussion and evaluation and its reviews and ratings have a significant impact on Arabic readers purchase decision-making. These findings enhance our understanding of the impact of online book feedbacks on readers in the Arabic world.

One of the most important findings of this study is the impact of book recommendations on Goodreads users and therefore on book sales. The result from Figures 4 and 8 seem to suggest that there is an association between book recommendations on Goodreads and book sales. This is further underlined by respondents' multiple additional comments, when they were asked about their usual activity on the website, such as 'read the opinions of others about books to decide whether a certain book is worthy of reading'; 'explore books and the latest reading status of my friends on Goodreads' and 'follow my friends' suggestions and updates'. Moreover, these findings further support the survey conducted by Goodreads (2012)

showing that 64% of Goodreads members get book recommendations from their friends on Goodreads.

On the factors that affect Goodreads' users when writing reviews or rating books (Figure 5), the obtained results match those observed in the aforementioned study by Dimitrov et al. (2015): "attributes of Goodreads reviews reflect the content-orientation of the platform", as the users usually employ vocabulary related to the book contents in their reviews, and ratings of books are more moderate, which may reflect their deep evaluation of the books' contents. This finding is further supported by respondents' multiple additional comments, such as "the spelling and grammatical accuracy and the writing style of the book are very important to me …" and 'my enjoyment and impression of a book – do I think it is worth others buying it?'. Perhaps this detail in reviews was not captured by the sentiment analysis of 'positive' and 'negative' ranks which we deployed. In fact, we found that there is a correlation between sentiment scores and ratings of book reviews, yet with this being rational, the distance in sentiment scores between closely rated reviews was minimal. Consequently, we can conclude that the rating scale of five levels (stars) as provided in Goodreads whilst helpful in guiding users through their purchase decision-making, it does not provide a level of detail to differentiate between two closely rated books – for instance, between a book with a rating of 4 and another of 5. This is why users in larger scale tend to rely on the characteristics of textual reviews.

With regards to product reviews' truthfulness, in their thorough survey, Smith and Anderson (2016) found that 65% of the US adults who read online ratings and reviews regularly believe that they are generally accurate, and that 'more US report being influenced by highly negative reviews than are influenced by highly positive ones'. Taken together, this paper argues that Goodreads may play a significant commercial role in increasing book sales for publishers and booksellers in the Arabic context. This result is also supported by Thelwall and Kousha (2017), who pointed out that Goodreads 'has commercial value for publishers', as it contains millions of book readers and provides many services to them. Similarly, Verboord (2011) asserts that there is a large chance of hitting popular book bestseller lists, such as the New York Times (NYT) list when a book receives more ratings at Goodreads or Amazon.

In contrast, product reviews may not be a precise predictor of exact product quality. In their investigation into the role of online review sentiments on book sales, Hu et al. (2006) state: "the average of the product reviews is a poor proxy for true product quality" and they "can possibly lead to erroneous conclusions about consumer preferences and misleading marketing decisions for managers." In the same vein, Verboord (2011) found that the average level ratings (i.e., the number of stars) do not have a significant impact on the commercial success of books. These findings may explain why the majority of those surveyed have not trusted the book average ratings alone, but rather on both; rating and reviews.

Inline with the mentioned analysis, our findings – refer to Figure 9 – suggest that Goodreads Arabic users usually rely on both book ratings and reviews for their purchase decision-making. A possible explanation for this might be that Goodreads presents the overall book ratings by calculating the average for all ratings: some users may be biased in rating a book (i.e., give it 1 or 5 stars) without deeply evaluating the book's content. Consequently, the overall average rating will not reflect the true quality of the book. In support of this, Thewall and Kousha (2017) state that most of Goodreads' ratings are high, and this is because the new users usually start with their favourite books and give them a top rating. They concluded that the book ratings have an indirect impact on book

sales, while the extracted sentiments from textual reviews have a significant direct influence on them.

Despite these benefits of online book discussions and ratings, Arabic publishers seem to have old and rigid strategies, ignoring the new online promotion approaches. Elsayed (2010) concludes that librarians and publishers in the Arabic world work away from Arab online book groups. She recommended that Arab public libraries should be more active in online book discussions and the publishers should focus on these cost-effective SM platforms in their strategies. Further investigation into the effects of online book reviews and rating on customers need to be undertaken, especially in the Arabic context.

6   Limitations and open research lines

Two main factors may have influenced the findings of the presented research one way or another. The first is the level of detail and categorisation considered in including books and consequently their reviews and ratings. Some of these details could have produced some bias in the outcomes yet we believe not significantly so. That is, the main focus of this research is tailored to analyse the general Goodreads' impact on book sales and users' purchase decision-making within the Arabic context. An acceptable geographical distribution in survey responses is achieved which, to a reasonable extent, adds to the value made and the findings drawn by the presented research.

Another limitation of this research is related to lexicon choice for the sentiment analysis of Arabic book reviews. Contrary to sentiment analysis in English corpus, Arabic text analysis in general, and especially for sentiment analysis, is still an immature filed of research. As a result, most of available tools and libraries provided for Arabic sentiment analysis are either poor or domain-specific. For instance, one would be able to provide much more reliable sentiment-analysis for Twitter Arabic feeds, given the availability of lexicon designed specifically to include dialectical terms used in Twitter feeds. These, however, cannot be broadly generalisable to be used in other domains, or if so, are not expected to perform equally accurate. That said, the internet of this research was to provide a comparison between the impact of rating and that of reviews on purchase decision-making process. For that we looked not only on abstract values of scores, but their means and statistical properties. Additionally, we used lexicon that included dialectical as well as terms for generic use to marginalise the limits of domain-specific Arabic lexicon.

This research has thrown up many questions in need of further investigation. Some of the aspects that future studies could address further demographic investigations into Arabic Goodreads users, including the geographic locations and level of study, and whether the books become popular on Goodreads and receive high positive ratings and reviews before or after they receive high purchasing demand. In other words, whether or not the large number of Goodreads reviews lead to an increased buying demand for a particular book.

Appendices A, B and C are provided online: https://goo.gl/zkW4LN.

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Notes

1   https://www.goodreads.com

2   Online community groups provided by Goodreads for readers in related subjects – see
available groups: https://www.goodreads.com/group/show_tag/book-lovers.

3   The obtained outcomes of questionnaire can be accessed here: https://goo.gl/dEvZcP.

4   An online book retailer based in Amman, Jordan that ship to readers throughout the
Middle East.

5   SCL-NMA can be accessed: http://www.saifmohammad.com/WebPages/lexicons.html.