

This is a postprint version of the article published as:

Tveit, Å. K., & Mangen, A. (2014). A joker in the class: Teenage readers' attitudes and preferences to reading on different devices. *Library & Information Science Research*, 36(3), 179-184.

## **A Joker in the class: Teenage readers' attitudes and preferences to reading on different devices**

### **Abstract**

A comparison of 10<sup>th</sup> graders' reading of a narrative, literary text on a Sony E-reader and in print showed that preferences for reading devices are related to gender and to general reading habits. 143 students participated in the study. In a school setting, students were asked to begin reading a novel on one device, and then continuing the reading the same novel on the other device. A survey was administered before and after the reading session, measuring reading habits in general, device preferences, and experiences with screen and paper reading. Results showed that, overall, most students preferred reading on the e-reader. This preference was particularly strong among boys and reluctant readers, whereas avid readers were more in favor of print. Implications of these findings for library policies and priorities are discussed.

### **1. Introduction**

Modes, habits and preferences of reading are closely tied to technologies, and the technology of print has shown to be remarkably resilient and versatile (Manguel, 1997; Weel, 2011). From being primarily, if not exclusively, connected with printed materials, reading is now carried out on an increasing number of digital mobile reading devices, such as e-readers, tablets and smart phones. The dispersion of reading to digital devices can be assumed to be particularly salient in cohorts typically open to and curious about technological innovations, such as children and teenagers.

In much research literature on technologies and reading, an idea has gained currency that new generations growing up with ubiquitous access to digital technologies possess distinct and sophisticated skills using these technologies (see, e.g., Livingstone, 2010, 2012; Margaryan, Littlejohn, & Vojt, 2011 for an overview). Commonly labelled "digital natives" (cf. Prensky, 2001), these cohorts are claimed to show different patterns of

medium/technology preference and reading/learning habits, compared to those of older generations. A number of metastudies (Bennett & Maton, 2010; Bennett, Maton, & Kervin, 2008; Helsper & Eynon, 2010; Jones, Ramanau, Cross, & Healing, 2010) have begun casting doubt about the existence of such a cohort and phenomenon. Nevertheless, questions about teenagers' reading habits, preferences and experiences are vital, as they may indicate future trends of reading.

Until fairly recently, the digitization of reading mainly pertained to purposes and kinds of reading outside the literary domain, such as searching or online news reading. With the increasing popularity of e-readers and surf tablets, however, it is not unlikely that also literary reading will be increasingly screen- rather than paper-bound. Such a transition is an occasion to address a number of intriguing research questions about literary reading habits and preferences and how these may, or may not, be influenced by digital reading platforms.

## **2. Problem statement**

The ongoing digitization of reading has considerable implications for both public and research libraries, and more research-based knowledge is needed, pertaining to the influences of new reading devices habits of reading among a wide variety of library users. Programming, reading promotion and collection development are among the services influenced by changes in media use and reading habits. The present study was designed in order to empirically address aspects of teenagers' leisure reading preferences.

The main purpose of this study is to investigate teenage readers' self-reported experiences and attitudes towards literary reading on a digital device versus in a paper book. The research questions are as follows:

- What are 10<sup>th</sup> graders' preferences, experiences and attitudes of reading in general, and of literary reading in particular, on e-books and in print? Do responses display patterns that may relate to (i) gender, (ii) differences in socioeconomic status (SES), and (iii) reader profile?
- How do teenage readers consider the specific features of print and e-readers to be affecting certain cognitive and emotional aspects of narrative fiction reading?

### 3. Previous research

Despite a considerable amount of research on digital reading, mainly in cognitive and educational psychology, reading and literacy research, book history and media studies, pedagogy, and library and information science, there are still more questions than answers in this field. Research projects vary with respect to scope and method, and main findings concerning the effects of technological affordances on central aspects of reading are still to a considerable extent inconsistent. Some studies (Jeong, 2012; Kim & Kim, 2013; Mangan, Walgermo, & Brønnick, 2013; Stoop, Kreutzer, & Kircz, 2013a, 2013b; Wästlund, Reinikka, Norlander, & Archer, 2005; Wästlund, 2007) find reading on screen to be inferior to reading on paper with respect to cognitive outcomes (e.g., reading comprehension). Other studies have found that there are no or only minor cognitive differences and that the main differences are on a metacognitive level (Ackerman & Goldsmith, 2011) or pertain to subjective experience and evaluations rather than objective outcomes (Furnes & Norman, 2012; Grzeschik, Kruppa, Marti, & Donner, 2011; Kretzschmar et al., 2013). In a study of American middle school students, use of e-readers even changed how students valued the activity of reading (Miranda, Williams-Rossi, Johnson, & McKenzie, 2011).

Studies in LIS have explored students' patterns of e-book use in their study programs (Hernon, Hopper, Leach, Saunders, & Zhang, 2007; Pattuelli & Rabina, 2010). A number of studies show that adoption is slow and that students continue to prefer print for many purposes of reading (Aaltonen, Mannonen, Nieminen, & Nieminen, 2011; Foasberg, 2011; Slater, 2010). For instance, in a large-scale study of user attitudes and behavior at the University of Illinois, it was found that e-books were most heavily used for research, whereas users preferred print books for ease of use and pleasure of reading (Shelburne, 2009).

It has been proposed that reluctance to the use of e-books for, in particular, leisure reading, can be at least partly related to what is called “haptic<sup>1</sup> dissonance” (Gerlach & Buxmann, 2011). “Haptic dissonance” denotes a feeling that something is missing with respect to the expected, and preferred, experience during reading. This experience is based on how it feels, sensorially, to read a book, depending in particular on haptic and tactile feedback. Due to differences in this kind of feedback when reading on a Kindle or an iPad,

---

<sup>1</sup> Haptics (from Greek *haptain*), denotes a combination of tactile perception associated with active movements (i.e. voluntary movements generated by central motor commands which, in turn, induce proprioceptive feedback).

readers report missing the tactile feel of holding the book in their hands, tinkering with the pages, etc. (Gerlach & Buxmann, 2011; Pattuelli & Rabina, 2010; Rose, 2011; Scarry, 2001).

#### **4. The role of reading devices and interface affordances**

In addition to being a visual and psychological process aiming at making sense of linguistic, written text, reading is fundamentally a human-technology interaction. Therefore, when reading technologies change, and readers move from primarily interacting with books and newspaper in print, to increasingly interacting with screen-based substrates, it becomes apparent that reading is multisensory and embodied (Mangen & Schilhab, 2012), involving sensory modalities that are not typically considered part of a reading process and experience, such as haptics and tactility (Mangen, 2008). This entails that aspects of the reading device, such as ergonomics and haptic/tactile dimensions of the substrate, present themselves as worthy of empirical investigation.

Digital reading devices have different technical and material features than a printed book. A surf tablet such as an iPad is a so-called “do-it-all” device (Hayler, 2011) which can implement and display all modalities (e.g., audio, video, graphics, text) and function simultaneously as a music player, a camera, a web browser, a movie player, and a text display. The iPad is based on LCD (liquid crystal display) technology, a screen technology entailing backlighting. The screen is a hyper-responsive HD color touch-screen; hence, visual processing of anything displayed on an iPad is closer to the visual appearance of anything displayed on a computer screen than to anything printed on paper.

In contrast, e-readers such as Kindle, Kobo, or Sony Reader, are so-called “dedicated single-function” devices which are based on electronic ink, a screen substrate designed to mimic the visual appearance of ordinary ink on paper (Hayler, 2011). The basic elements of electronic ink are “tiny microcapsules (each with a diameter comparable to that of a human hair) containing positively charged white particles and negatively charged black particles suspended in a clear fluid” (Siegenthaler, Wurtz, Bergamin, & Groner, 2011, p. 268). Due to its stable image, wider viewing angle, and the fact that it merely reflects ambient light rather than emitting light itself, reading devices based on electronic ink are considered more reader friendly, particularly for longer, purely text-based, material, e.g. novel reading.

In general, findings from previous empirical research are difficult to compare. Devices differ along several dimensions (lighting/luminance; legibility; size; weight; portability), each

of which may have an impact on reading. The purpose of reading may also matter. For instance, it may make a difference whether the text is experimentally generated and/or manipulated for the particular purposes of a specific experiment (i.e., a so-called “textoid”), or whether it is an actual text originally written for a “real” purpose (e.g., study, or fiction). In an early review article, Dillon (1992) remarks the lack of ecological validity of much of this research, mainly due to the fact that the reading carried out does not do justice to “real-world reading” (p. 1314). Attempting to address such shortcomings, the present study had students read a real literary text.

Much empirical research comparing reading in print and on screens is carried out with university students. Although this cohort can reasonably be assumed to show increasingly digitized reading habits and behavior, teenage readers might to an even greater extent be expected to embrace digital technologies as a natural part of their reading portfolio. Teenagers are, moreover, young enough to be familiar with digital technologies from an early age, and they have shown to be the age group exhibiting the most diverse pattern of digital media use (Vaage, 2013). Large-scale national surveys show that, around the age of 15, Norwegian teenagers show an increased use of digital devices where they listen to music, play games and exchange content with their friends, and a slight decrease in reading books (The Norwegian Media Authority 2014). Additionally, and particularly relevant here, on average, 15-year-olds can be expected to have developed personal reading habits and a personal taste in leisure reading (Appleyard, 1991; Tveit, 2012). Often said to be going through a period of identity crisis, teenagers can be assumed, in general, to gain and display increasing self-awareness (Erikson, 1968). By implication, they can be assumed to display personal reflections and opinions with respect to their media use.

## **5. Method**

### *5.1 Participants*

143 students (age 15 years-old; 71 boys and 72 girls) participated in the study. In order to recruit participants differing in attitudes to reading and in SES, schools from the Western respectively Eastern areas in Oslo were selected. To ensure an appropriate number of participants, schools from outside of Oslo were included.

Schools R and B are located in respectively the West and Central East side of Oslo, whereas schools S and H are located in counties adjacent to Oslo. School R is located in an

area whose population is mainly ethnic Norwegian, and characterized by the highest income and level of education in Oslo. In contrast, school B is located in a part of Oslo with modest incomes and high amount of people depending on social security support, combined with a high percentage of first or second generation immigrants from Asian and African countries<sup>2</sup>. Schools S and H are located in densely populated areas characterized by a variety of social classes, and having a representation of ethnic and linguistic minorities close to a national average for Norway. School O is located close to the wealthy area west of Oslo, and is comparable to school R when it comes to levels of income, education and ethnicity of population. School H was chosen due to the staff's interest and engagement in digital teaching tools. This school was recruited through The Norwegian Centre for ICT in Education<sup>3</sup>.

## *5.2 Instruments*

### *5.2.1 Questionnaire*

The design for the study consisted of a reading session and a multiple choice questionnaire in two parts. The introductory part covered demographic information, including questions about native language and about reading habits in general; the main section consisted of 9 questions with subcategories concerning students' views and experiences concerning their fresh reading from paper book and e-book. The introductory part of the questionnaire was administered before the reading session, and the main part after the reading session. The questionnaire also included open-ended items asking students to comment, in their own words, on what they considered best and worst concerning their reading experience both in print and in digital form. These comments were categorized into topic-based clusters and summarized, and provide a valuable supplement to the quantitative data.

Shortly before carrying out the main study, a pilot was conducted with two 16-year-old girls. Based on the results of the pilot, the questionnaire was slightly altered by simplifying the language to ensure comprehension.

### *5.2.2 Reading material*

---

<sup>2</sup> Oslostatistikken 2013. Innvandring. <http://www.utviklings-og-kompetanseetaten.oslo.kommune.no/oslostatistikken/innvandring/>

<sup>3</sup> Senter for IKT i utdanningen (<https://iktsenteret.no/english>).

In order to compare preferences of reading platforms, one text was chosen to be read on two platforms by all respondents. As Norwegian teenage readers tend to prefer adult literature, the novel *Jokeren* (1986) / *The Joker* (1991) by one of the most widely read authors, Lars Saabye Christensen, was chosen. The opening section of *The Joker* contains a surprising as well as puzzling twist, which was assumed to function as a potential trigger to carry on reading: “But I was not dead. But that’s what it said in the newspaper.”(Christensen, 1991, p. 3).

### 5.2.3 Reading devices

For economical and practical reasons, a Sony Reader PRS T2 was selected. This device is designed for reading text, and it has about the same weight as a paperback novel, but is slightly smaller and considerably thinner. The e-version of *The Joker* was purchased from several e-booksellers.<sup>4</sup>

30 copies of the print version of the novel was purchased, as a paperback edition, printed in Times New Roman, font size 10, with a cover dominated by a Joker card, the head of the joker in the shape of a pig. The e-book version had no cover illustration.

### 5.3 Procedure

Information letters and consent forms were distributed to the parents of the students, in accordance with the ethical standards of the Norwegian Social Science Services<sup>5</sup>. The level of participation was 95 - 100 % for all schools, except for one class at school B, where only 45 % took part, due to an incorrect rumor among the students that those who did not take part, could have time off.

The field experiment was carried out in eight classes in which the subject was Norwegian language and literature. Typically, these classes are used for reading, meaning that a well-known activity to the students was carried out in a well-known environment. Each session lasted approximately 60 minutes, which was the maximum of time permitted by the schools’ headmasters. Session time included a brief presentation of the study, a demonstration of how to use the Sony Reader, 2 X 15 minutes of reading time on respectively an e-reader

---

<sup>4</sup> Due to a limit on the number of copies that can be purchased with one online bookstore account, a number of accounts had to be created, with different bookstores.

<sup>5</sup> Norwegian Social Sciences Research. Data Protection Official for Research.  
<http://www.nsd.uib.no/nsd/english/pvo.html>

and in a paperback copy, and the administration of the questionnaire (before and after reading; about 20 minutes in total). To simplify the data collection process, and to keep technical requirements to a minimum, questionnaires were distributed on paper.

The Sony Readers could not be connected to the Internet during the hours of experiment, thereby limiting possible distractions. However, the devices did offer limited interactivity to the readers, such as searching the text, making notes and changing font size. Observation indicated that students did not, to any noticeable extent, use the additional features.

In one of the participating classes, the questionnaires were erroneously split up so that student responses to pre-reading items were, by a mistake, collected before the second part of the session. This made it impossible to compare student responses before and after reading for this particular subsample. For this reason, the current subset of questionnaires (from 21 informants) was kept separate in the analyses, and added to the questions where they did provide answers. This procedural glitch will explain the variations in the total number of students in the tables, but otherwise have no impact on the overall results.

Statistical analyses were carried out using SPSS 20.

## 6. Findings

Four main themes emerged from the data analyses: (1) general attitudes to leisure reading and to digital reading; (2) reading in print and on e-reader; (3) attention and comprehension when reading in print and on e-reader; (4) visual and sensorimotor ergonomic aspects of reading in print and on e-reader.

### *6.1 General attitudes to leisure reading and digital reading.*

To the statement “I love to read in my spare time”, 32 % of the students agree, while 51 % disagree, and could hence be classified as reluctant readers. About the same number states that they do not read books. There are a few devoted readers in our sample, though; 5 % read more than three books per month (among these, there was only one boy). Of those who read for pleasure three days or more a week, 11 % are boys and 20 % girls. There are no indications of differences in reading habits in general connected to social differences, the likes and dislikes of reading are equally distributed among the schools.

The majority of the students (65 %) have their own tablet, and at the R and O schools, as many as 85 % own a tablet. This is considerably higher than the national average of ownership for this age, which is 50 % (The Norwegian Media Authority, 2014 p.23). It is also higher than the average in the UK, where 21 % of those aged 15 have their own tablet (Ofcom, 2013).<sup>6</sup> Of those who do not own a tablet, 15 % have never tried one, and these students are mainly to be found at school B in the Central East side of Oslo.

The participants in this study were not familiar with e-book reading, either on tablet or on e-readers; only two students report ownership of an e-reader and a small group (12 %) have read books on their tablets. However, 29 % report that family members are e-book readers. The students use their tablets mainly for social media, reading news, playing games and communication.

The students' answers concerning views on reading in the future reveal, in general, a relatively e-book-friendly attitude. 76 % agree to the statement "In the future, I think it will be more common to read on an e-book device than in a paper book". 82 % of the boys agree, and as shown in Table 1, 50 % of them "totally agree", while the girls are a little more hesitant (See Table 1).

## 6.2 Reading in print and on e-reader

Overall, the results indicate that reading habits and preferences in general have an influence on preferences and attitudes with respect to reading device. Only 13 % report that there is "no difference" between reading on paper and on e-reader. In the small subsample of devoted readers), a majority (five out of seven) prefer the paper book to the Sony Reader. In contrast, in the subsample of students reporting that they read 1-3 books per month, and also among those who do not read in their leisure time, a majority (56 % and 83 % respectively) report that they prefer to read on the Sony Reader rather than in print.

A closer look at the relations between expected preferences and actual preferences reveals some interesting findings. Among the girls, only 31 % expected to prefer the e-book reader to the paper book. However, after having read from *The Joker* on an e-reader and in print, 64 % of the girls reported that they preferred the e-reader (Table 2 and 3). Still, more girls than boys prefer the paper book (28 % and 16 %, respectively), and reading frequency

---

<sup>6</sup> Obviously, digital devices (e-readers as well as tablets) are quickly becoming more affordable. Hence, one can reasonably expect a significant increase in the number of people owning their own tablets or e-readers.

and number of books read in a month show that girls are significantly more into leisure reading than boys. The female dominance in book reading is well documented, but the option of reading on a digital device seems nonetheless to be more tempting to the male readers in this study. Such a gender-related tendency is confirmed in a recent Danish study (Epinion & Pluss Leadership, 2012).

### *6.3 Self-reported attention and comprehension when reading in print and on e-reader*

The questionnaire assessed the students' reading preferences by listing 20 statements concerning aspects of reading comprehension, immersion and speed, and a number of statements concerning physical and emotional aspects of reading on the two devices. Respondents were to select "book," "e-reader," or "no difference" (See Table 4). Responses to items assessing readers' self-reporting of (i) concentration during reading, (ii) comprehension and memory of events in the story, and (iii) reflection and contemplation prompted by the text did not differ according to reading device, in that

44-64 % answered "no difference" for these statements. Hence, to most readers in this sample, cognitive aspects did not seem to play a role in the preference of one platform over the other. When it comes to aspects like speed of reading and the easiest device to read from, the e-reader score high above the paper book; 62 vs 18 % and 76 vs 13 % respectively.

### *6.4 Visual and sensorimotor ergonomic aspects of reading in print and on e-reader*

The students' comments on what they considered the "best" and the "worst" features of the two reading platforms, revealed some interesting patterns. The most frequently stated negative comments to the paper book had to do with its type face, which 24 % of the students found irritating, either because it was too small or too much text on each page. The page-turning of the paperback was negatively rated by 18 % in the sample, who found this to be difficult, impractical or old-fashioned. A small number of students commented on the impracticalities of the materiality; "if you drop the book, you are completely out of it".

Among those preferring the print book, the smell and the feel of the book were cherished qualities. 19 % commented that the best thing about the paper book was its sensual qualities – good to hold, feel or to smell, and 15 % of them pointed out the emotional qualities of the paper book (e.g., "I like to feel the paper in my hands"). One respondent even commented on the way in which the materiality of paper can provide adequate ergonomic

feedback to embodied/physical excitement: “You can squeeze a paper book harder when the story gets more exciting”. Surprisingly, only 2 % commented on the quality of the cover, a feature otherwise known to be of great importance to readers (Ross, 2001).

Overall, the e-reader was most popular among the students and the negative comments to this device for the most part (19 %) pertained to disappointing technical and graphical design, including the lack of possibilities with which they are familiar from their use of tablets (e.g., “Nothing to do with it while you read”). However, as many as 13 % reported physical problems while reading on the e-reader, either problems with the eyes or headache. A few reported negative experiences with the e-reader; “I was distracted, because I tried out all the functions” or “I did not get the same good feeling as when I read in a real book”. Hence, for some students, the e-reader seemed to have a somewhat problematic appearance as something in-between – it did not provide all the digital possibilities, nor did it offer the coziness of the paper book.

The e-reader got the highest amount of positive comments; 96 % of the students expressed their opinions, and most of the positive comments dealt with the functionality (e.g., “Comfortable to hold” and “Easy to turn pages”). 21 % commented on practical matters, i.e. the capacity of the e-reader to contain stacks of books and still have so little weight. 9 % commented that this device made it easier for them to read: “It was easier to catch up with the content of the text, and I felt that reading in itself became easier”.

## **7. Discussion**

Previous research indicates that the reader is more likely to get “lost in a story” when reading a printed version than a digital one (Gerlach & Buxmann, 2011; Mangen & Kuiken, submitted). This is, however not to be found in the present study, where the answers to question on immersion, attention and comprehension are more evened out (see Table 4). The answers to aspects of reading pertaining to the intellectual processing of the story indicate that, for this sample, reading a narrative literary text in a paperback or on an e-reader does not make a difference for their subjective experience, as measured with such a questionnaire, a finding supported by Grzeschik et al. (2011): “Contrary to common opinion, the results indicate a trend that concentration and/or reading rates do not suffer from reading on electronic reading devices.” (p. 288) Their study concluded instead that “influences on reading rate and concentration are posed rather by the individual reading behavior of a person,

as well as by the nature of a text (scholarly or novelistic), than by the reading devices used.” (p. 288).

In the present study, paper book lovers, who have had a number of good reading experiences from printed texts, are - not surprisingly - less keen on reading books from e-readers, as this device represents another feeling, another form. The devoted readers clearly prefer a good read in the form they already know. A similar emotional preference for paper books among devoted readers was found in the study on “haptic dissonance” by Gerlach and Buxman (2011).

A number of limitations could be pointed out in the present study, and its design precludes the possibility of providing any causal explanations for the observed patterns. Still, a look at the overall preference of the e-reader among the students, points to the possible use of the e-reader as a “joker” in the class or in a public library. Introducing digital reading devices in some reading settings could mean a fresh start and a more interesting approach to texts for those who initially do not love to read. The e-reader could help foster a more positive attitude to (literary) reading for reluctant and struggling readers who may not master reading very well, and for whom the paper book is a reminder of their own shortcomings. The findings in this study indicate that this may indeed be a possibility, as many of those who were most in favor of the e-reader, were among those who claimed that they did not like reading at all. This finding ties in with the study of e-readers in a middle school (Miranda et al., 2011), where reluctant boy readers valued reading more after their experience with e-readers. Presenting an e-reader as an alternative to print books, could hence be a way to promote reading to non-readers.

## **8. Conclusion**

Three main findings stand out as particularly consistent: The first is the overall positive experience with the e-reader; the second finding is the (gender-related) difference in preferences between the few avid readers, who prefer the paper book and the many non-readers, who prefer the e-reader. The third main finding is that when it comes to readers’ perceived experience of psychological (perceptual; attentional; cognitive) aspects of reading on paper and on an e-reader, medium-related differences seemed to be perceived as less important.

The knowledge here generated about reading habits and reading preferences among both avid and reluctant young readers, is valuable to both teachers and librarians. In particular

it is of interest to those who work with youth, planning reading programs or working on collection/media development. However, limitations inherent to the present study (e.g., a small number of participants) require the supplementation of further empirical research.

One can envision several ways in which the present study could be supplemented by future research, in particular, by interdisciplinary approaches. For instance, following up the finding that readers reported concerning pleasure aspects, like the turning of pages of the e-reader and the emotional pleasure of “the feel” of the paper book, one could conduct experimental research enabling a combination of first- and third-person measures of emotional aspects of literary reading. Combining the use of validated scales measuring transportation and narrative engagement from media psychology (e. g. Busselle & Bilandzic, 2009; Green & Brock, 2000) with, for instance, physiological measures of arousal, such as pupil dilation or skin conductance response (see e.g. Benesh, 2011; Nell, 1988) one might be able to more fully observe and measure reader immersion during reading on different devices.

The text used in the present study was a novel, of which the students had time to read only a few chapters. Using entire novels or short stories, read outside and inside a class, would add interesting data to compare with the current study. Such studies would require an awareness of fundamental differences pertaining to diverse types of text, purposes of reading, and differences between multi-use devices on the one hand, and dedicated reading devices such as e-book readers, on the other. These three dimensions are interrelated, and public libraries as well as specialist libraries primarily serving education and research needs, would benefit from having the best knowledge possible from reading research on these urgent matters.

## **Acknowledgements**

The authors are grateful to the headmasters and teachers at the five schools, who generously opened their classrooms to this reading experiment, and to the students who attentively took part.

## **Literature**

- Aaltonen, M., Mannonen, P., Nieminen, S., & Nieminen, M. (2011). Usability and compatibility of e-book readers in an academic environment: A collaborative study. *IFLA Journal*, 37(1), 16–27. doi:10.1177/0340035210396775
- Ackerman, R., & Goldsmith, M. (2011). Metacognitive regulation of text learning: on screen versus on paper. *Journal of Experimental Psychology: Applied*, 17(1), 18–32.
- Appleyard, J. A. (1991). *Becoming a reader: the experience of fiction from childhood to adulthood*. [Cambridge]: Cambridge University Press.
- Benesh, N. A. (2011). *Narratives with an impact: linguistic features of cognitive and emotional engagement in transportation*. University of Memphis, Memphis.
- Busselle, R., & Bilandzic, H. (2009). Measuring Narrative Engagement. *Media Psychology*, 12(4), 321–347. doi:10.1080/15213260903287259
- Christensen, L. S. 1953-. (1986). *Jokeren: roman*. [Oslo]: Cappelen.
- Christensen, L. S. 1953-. (1991). *The joker*. Fredonia, N.Y.: White Pine Press.
- Epinion & Pluss Leadership. (2012). *Danskernes kulturvaner 2012*. Retrieved from <http://kum.dk/servicemenu/publikationer/2012/danskernes-kulturvaner-2012/>
- Erikson, E. H. (1968). *Identity: youth and crisis*. London: Faber & Faber.
- Foasberg, N. M. (2011). Adoption of E-Book Readers Among College Students: A Survey. *Information Technology and Libraries*, 30(3). doi:10.6017/ital.v30i3.1769
- Furnes, B., & Norman, E. (2012). The relationship between metacognition, reading comprehension and individual differences in reading skills. In *Metacognition: Proceedings of the 5th Biennial Meeting of the EARLI Special Interest Group 16 Metacognition*. Milano.
- Gerlach, J., & Buxmann, P. (2011). Investigating the acceptance of electronic books: The impact of haptic dissonance on innovation adoption. In *ECIS 2011 Proceedings*.

- Green, M. C., & Brock, T. C. (2000). The Role of Transportation in the Persuasiveness of Public Narratives. *Journal of Personality and Social Psychology*, 79(5), 701–721.
- Grzeschik, K., Kruppa, Y., Marti, D., & Donner, P. (2011). Reading in 2110 - reading behaviour and reading devices: a case study. *The Electronic Library*, 29(3), 288–302.
- Hayler, M. (2011). *Incorporating technology: A phenomenological approach to the study of artefacts and the popular resistance to e-reading*. University of Exeter, Exeter.
- Hernon, P., Hopper, R., Leach, M. R., Saunders, L. L., & Zhang, J. (2007). E-book use by students: Undergraduates in Economics, Literature and Nursing. *Journal of Academic Librarianship*, 33(1), 3.
- Jeong, H. (2012). A comparison of the influence of electronic books and paper books on reading comprehension, eye fatigue, and perception. *Electronic Library, The*, 30(3), 390–408. doi:10.1108/02640471211241663
- Kim, H., & Kim, J. (2013). Reading from an LCD monitor versus paper: Teenagers' reading performance. *International Journal of Research Studies in Educational Technology*, 2(1), 1–10.
- Kretschmar, F., Pleimling, D., Hosemann, J., Füssel, S., Bornkessel-Schlesewsky, I., & Schlewsky, M. (2013). Subjective Impressions Do Not Mirror Online Reading Effort: Concurrent EEG-Eyetracking Evidence from the Reading of Books and Digital Media. *PLoS ONE*, 8(2). doi:10.1371/journal.pone.0056178
- Livingstone, S. (2010). Digital learning and participation among youth: Critical reflections on future research priorities. *International Journal of Learning*, 2(2-3), 1–13.
- Livingstone, S. (2012). Critical reflections on the benefits of ICT in education. *Oxford Review of Education*, 38(1), 9–24.
- Mangen, A. (2008). Hypertext fiction reading: Haptics and immersion. *Journal of Research in Reading*, 31(4), 404–419.

- Mangen, A., & Kuiken, D. (submitted).
- Mangen, A., & Schilhab, T. S. S. (2012). An embodied view of reading: theoretical considerations, empirical findings, and educational implications (p. S. 285–300). Trondheim: Akademika.
- Mangen, A., Walgermo, B., & Brønnick, K. (2013). Mangen, A., Walgermo, B., & Brønnick, K. (2013). Reading linear texts on paper versus computer screen: Effects on reading comprehension. Retrieved November 17, 2013, from [https://www.academia.edu/3055159/Mangen\\_A.\\_Walgermo\\_B.\\_and\\_Bronnick\\_K.\\_2013\\_.Reading\\_linear\\_texts\\_on\\_paper\\_versus\\_computer\\_screen\\_Effects\\_on\\_reading\\_comprehension](https://www.academia.edu/3055159/Mangen_A._Walgermo_B._and_Bronnick_K._2013_.Reading_linear_texts_on_paper_versus_computer_screen_Effects_on_reading_comprehension)
- Manguel, A. (1997). *A history of reading*. London: Flamingo.
- Margaryan, A., Littlejohn, A., & Vojt, G. (2011). Are digital natives a myth or reality? University students' use of digital technologies. *Computers & Education*, 56(2), 429–440. doi:10.1016/j.compedu.2010.09.004
- Miranda, T., Williams-Rossi, D., Johnson, K. A., & McKenzie, N. (2011). Reluctant Readers in Middle School: Successful Engagement with Text Using the E-Reader. *International Journal of Applied Science and Technology*, 1(6), 81–91.
- Nell, V. (1988). *Lost in a book: the psychology of reading for pleasure*. New Haven: Yale University Press.
- Ofcom. (2013). *Children and Parents: Media Use and Attitudes Report* (Research Document). London. Retrieved from <http://stakeholders.ofcom.org.uk/binaries/research/media-literacy/october-2013/research07Oct2013.pdf>

- Pattuelli, M. C., & Rabina, D. (2010). Forms, effect, function: LIS students' attitudes towards portable e-book readers. *Aslib Proceedings: New Information Perspectives*, 62(3), 228–244.
- Rose, E. (2011). The phenomenology of on-screen reading: University students' lived experience of digitised text. *British Journal of Educational Technology*, 42(3), 515–526. doi:10.1111/j.1467-8535.2009.01043.x
- Ross, C. S. (2001). Readers advisory: Matching mood and material. *Library Journal*, (2), 52–55.
- Scarry, E. (2001). *Dreaming by the Book*. Princeton University Press.
- Shelburne, W. A. (2009). E-book usage in an academic library: User attitudes and behaviours. *Library Collections, Aquisitions and Technical Services*, 33(2-3), 59–72.
- Siegenthaler, E., Wurtz, P., Bergamin, P., & Groner, R. (2011). Comparing reading processes on e-ink displays and print. *Displays*, 32(5), 268.
- Slater, R. (2010). Why Aren't E-Books Gaining More Ground in Academic Libraries? E-Book Use and Perceptions: A Review of Published Literature and Research. *Journal of Web Librarianship*, 4(4), 305–331.
- Stoop, J., Kreutzer, P., & Kircz, J. G. (2013a). Reading and learning from screens versus print: A study in changing habits: Part 1. Reading long information rich texts. *New Library World*, 114(7/8), 284–300.
- Stoop, J., Kreutzer, P., & Kircz, J. G. (2013b). Reading and learning from screens versus print: A study in changing habits: Part 2. Comparing different text structures on paper and on screen. *New Library World*, 114(9/10), 371–383.
- Tveit, Å. K. (2012). Reading Habits and Library Use Among Young Adults. *New Review of Children's Literature and Librarianship*, 18(2), 85–104.  
doi:10.1080/13614541.2012.714341

- Vaage, O. F. (2013). *Norsk mediebarometer 2012* (Statistiske analyser). Oslo: Statistisk sentralbyrå. Retrieved from [http://www.ssb.no/kultur-og-fritid/artikler-og-publikasjoner/\\_attachment/116447?\\_ts=13ef9a29570](http://www.ssb.no/kultur-og-fritid/artikler-og-publikasjoner/_attachment/116447?_ts=13ef9a29570)
- Wästlund, E. (2007). *Experimental studies of human-computer interaction : Working memory and mental workload in complex cognition*. Gothenburg University, Göteborg. Retrieved from [https://gupea.ub.gu.se/bitstream/2077/4693/1/gupea\\_2077\\_4693\\_1.pdf](https://gupea.ub.gu.se/bitstream/2077/4693/1/gupea_2077_4693_1.pdf)
- Wästlund, E., Reinikka, H., Norlander, T., & Archer, T. (2005). Effects of VDT and paper presentation on consumption and production of information: Psychological and physiological factors. *Computers in Human Behavior*, *21*(2), 377–394. doi:10.1016/j.chb.2004.02.007
- Weel, A. van der. (2011). *Changing our textual minds: towards a digital order of knowledge*. Manchester: Manchester University Press.

**Table 1: Statement: "In the future, I think it will be more common to read on an e-book device than in a paper book"**

		Gender		Total
		Boys %	Girls %	N= 143 %
Statement on future reading habits:	1 Totally disagree	5.4%		2.5%
	2 Disagree	8.9%	12.3%	10.7%
	3 Neither disagree or agree	3.6%	12.3%	8.3%
	4 Agree	32.1%	44.6%	38.8%
	5 Totally agree	50.0%	30.8%	39.7%
			100.0%	100.0%

**Table 2: Prediction of preference**

**« I think I am going to prefer reading in the paperback book / on the e-reader/do not know»**

	Gender		Total N=122 (Numbers)
	Boys %	Girls %	
Prediction of preference			
1 In the book	19 %	37 %	35
2 On the e-reader	65 %	31 %	57
3 Do not know	16 %	32 %	30
	100 %	100 %	122

**Table 3: Main preference**

**«I preferred reading on the e-reader / in the book / no difference»**

	Gender		Total N=120 (numbers)	
	Boys %	Girls %		
Main preference	1 On the e-reader	71 %	64 %	81
	2 In the book	16 %	28 %	27
	3 No difference	13 %	8 %	12
		100 %	100 %	120

<b>Table 4: Differences in reading experience (N=143)</b>	<b>E-reader %</b>	<b>Paper book %</b>	<b>No difference %</b>
<b>A) Physical reactions</b>			
Most comfortable for my eyes	54	29	17
Best to hold on to	71	25	4
Most comfortable in turning over the pages	75	21	4
<b>B) Emotional reactions</b>			
Felt most natural to read from	31	53	16
Felt more personal to read from	23	46	31
Made it more fun to read	53	10	37
Most relaxing	58	22	20
Made me impatient while reading	17	36	47
Most tiresome to read from	18	53	29
Most boring to read from	13	56	31
<b>C) Intellectual reading qualities, speed and concentration</b>			
Made me want to read more	36	13	51
Made me reflect more upon the text	20	18	62
Easiest to understand what happened in the story	35	16	49
More attentive while reading	44	18	38
Easiest to immerse into the story	33	29	38
Made me reflect more after reading	18	18	64
Easiest to remember what was read	36	20	44
Disturbed me while reading	20	43	37
Highest reading speed	62	18	20
Easiest to read the text from	76	13	11