Prosody in reading

Work off campus? Learn more about our Remote Access Options Tom 42, Problem 1 Prosody reading text and reading comprehension are related, but both are based on decoding. The aim of the current study was therefore to separate the decoding contribution from the share of prosody skills. We analyzed results in text reading prosody and speech prosody in fifth-grade children with age-appropriate decoding but poor understanding. We compared their results with the results of chronological age checks and younger controls at the level of understanding. It turned out that the weak police men achieved a much lower score below the chronological age control in all the tasks of the prosody. Importantly, the weak shot downs scored below the younger, comerminating controls of speech rhythm. What's more, speech prosody explained a unique variance in predicting the state of reading comprehension (poor comprehension control vs. comprehension level control). This suggests that poor comprehenders have a delay in prosodic development, with an additional indication of a deficiency in perception and production of speech prosodii. The results show that the relationship between text reading and reading comprehension is not based solely on decoding. The prosody of reading text has consistently been shown to be related to reading comprehension. The prosody of reading text and reading comprehension both rely on decoding. The role of speech prosody in comprehension reading is less widely studied. The role of decoding in reading comprehension has been separated from the role of prosody skills in reading comprehension. Children with good decoding, but poor understanding (poor comprehension) performed text reading millet tasks and speech millet tasks. The weak comprehension achieved a much lower score than the chronological age control in both types of prosody tasks and lower than the younger ones, at the level of understanding the control of speech rhythm. Creating the right speech prosody when telling stories explained the unique variance in distinguishing the weak from understanding and control at the level of understanding. Perception and production of speech prosody may be less developed in the poor with understanding and may partly contribute to reading problems with understanding. For comprehension reading, it may be necessary to use the prose appropriately to create a proper internal representation of the written text. Reading comprehension is a complex process that requires children to quickly and accurately recognize words in text while building meaning. Therefore, it is assumed that proficiency in reading is a prerequisite for comprehension reading and has traditionally been defined as reading (reading text) at speed and without errors (automation aspect). Recently, however, it has been shown that the extent to which children use the appropriate intonation, distribution of stress, stress, pausing and rhythm) when reading aloud is also associated with their ability to understand reading, and text reading prosody has been added to the concept of reading proficiency (addition to reading speed and reading accuracy; e.g. Rasinski, Rikli, & Johnston, 2009; Veenendaal, Groen, & Verhoeven, 2015). However, both reading the text of the prose and reading comprehension rely heavily on the ability to read. In fact, it was found that effective and automated decoding is an essential skill for adult prosodii text reading to develop in primary school students (Miller & Schwanenflugel, 2006; Schwanenflugel, Hamilton, Kuhn, Wisenbaker, & Stahl, 2004). Therefore, the question of the extent to which the automation aspect and the prosody aspect of reading proficiency can be separated with regard to comprehension reading is unresolved. Is the prosodyne aspect merely an epiphenomen for effective decoding, or does it deserve a more independent status? In order to further define the relationship between decoding, prosodic and comprehension reading, we study prosidian skills in a group of poor with understanding – children with age-appropriate decoding, but with persistent difficulties in reading comprehension (e.g. To be able to read fluently, traditionally means reading at speed and without errors, but recently, reading with appropriate intonation has also been suggested to be important (e.g. Kuhn & Stahl , 2003). A link has been repeatedly reported between the automaticity aspect of text reading – defined as speed and accuracy – and the understanding of reading (e.g. Kim & Wagner, 2015; Kim, Wagner, & Lopez, 2012), but there is growing literature that emphasizes the importance of prose reading text in this relationship (e.g. Miller & Schwanenflugel, 2006, 2008; T. Rasinski et al., 2009; Schwanenflugel et al., 2004). The prosodyte of text reading can be assessed using rating scales to obtain a holistic measure of prosody or by spectrographic analyses to measure the individual characteristics of the prosody. Ratings scales assess pro-Sidic aspects such as enthusiasm, phrases, overall fluidity and pace when children read text aloud. Studies using such evaluation scales showed that text reading prosody was significantly correlated with comprehension reading in children in third, fifth and seventh grades (T. Rasinski et al., 2009) and that text reading prose represented a significant variance in reading comprehension results in fourth-grade children (Calet, Defior, & Gutiérrez-Palma, 2015; Veenendaal et al., 2015) and fifth grade (Klauda & Guthrie, 2008). Other studies have used spectrographic analyses to assess pro-Odd traits, such as the contours of the intonation and the pitch at the end of the sentence. Miller and Schwanenflugel (2008) showed that children with decreasing number of inappropriate first-to-second-grade oral breaks and early intonation contours for adults performed better on the third-grade reading comprehension test. In addition, qualified readers have been shown to read with fewer inappropriate breaks and more intonation than novice readers (Schwanenflugel et al., 2004). Since improper pausing is related to decoding problems, it is proposed that automation in reading, i.e. decoding performance, be necessary for the development of text reading prosody (Schwanenflugel et al., 2004). However, even if decoding may be a necessary prerequisite for proper text reading performance millet; studies have not yet examined whether this is also sufficient. The weak comprehension are interested in this context, because their decoding skills deviate from their comprehension reading skills. If the decoding performance is sufficient to develop the relationship between text reading and comprehension, the weak are expected to show an age-appropriate level of text reading prosody. However, if decoding is necessary, but not sufficient to develop this relationship, and the prosody of reading the text is more related to reading comprehension, we expect their prosody reading skills to be poor. Both decoding performance and text reading prosody rely heavily on the ability to read well. To further distinguish the contribution of decoding effectiveness to the relationship between prosody and comprehension reading, we study the skills of speech prosody (i.e. perception and production of speech rhythm, stress distribution and word boundaries in the oral language) in the same poor comprehenders. Although early Prosid speech perception has been shown to have contributed to reading skills such as phonological and morphological awareness (Zhang & McBride-Chang, 2010), little is known about the contribution of early prosody skills in later reading comprehension. Only a few studies have examined the relationship between speech prosody and reading comprehension as part of general reading skills (Holliman et al., 2014; Kent, 2013; 111: 111–133 3. Lochrin, Arciuli, & Sharma, 2015; Whalley & Hansen, 2006). Holliman et al. (2014) showed that performing a prosody test that assessed the perception of stress placement, intonation, and time was correlated with reading comprehension in first- and second-grade children. A comprehensive assessment of speech prosodic is the Prosodic Systems - Children (PEPS-C) computer test (Peppé & McCann, 2003), which measures both perception and production of speech prosodic. Kent (2013) found that many test tasks were carried out – perception of speech rhythm, stress stress and the limits of words – it involved children's understanding of reading. In addition, the perception of word boundaries and stress distribution explained the unique variance in reading results comprehension in fourth-grade children (Kent, 2013). Lochrin et al. (2015) also took the PEPS-C test, but examined the perception and production of speech prosody and linked it to reading words and reading the results comprehension in children aged 7 to 12 years. They found that the perception and production of word boundaries and perception of speech rhythm and stress distribution were associated with reading comprehension, but only the production of word boundaries explained the unique variance in reading comprehension (Lochrin et al., 2015). On the other hand, Whalley and Hansen (2006) used the word PEPS-C and another similar word boundary test and found that these two open tasks were not correlated with reading comprehension in fourth-grade children. Previous results have shown that different aspects of speech prosody may relate differently to comprehension reading, although they also show that the results are not consistent between studies. Inconsistent results seem to relate mainly to task-dependent factors, with most studies assessing perceptions of speech prosody (Kent, 2013; Whalley & Hansen, 2006) and some studies evaluating production and perception (Lochrin et al., 2015). In addition, the age of the children who participated, and the control variables, differed (phonological awareness and rhythmic sensitivity, Whalley & Hansen, 2006; age and phonology awareness, Lochrin et al., 2015; decoding and understanding of listening, Kent, 2013). In the current study, therefore, we decide to evaluate speech prosody using a wide range of perception and production tasks, as well as a greener context for storytelling. The aim of the current study was to degranitus the contribution of decoding effectiveness to the relationship between prosody and reading understanding using two different approaches. Firstly, the current literature proposes that effective decoding is a necessary skill for the emergence of a relationship between prose reading and reading, but so far it is not clear whether decoding is also sufficient. We studied the performance of children with strong decoding but poor comprehension reading skills (weak comprehension) to provide better insight into the problem. Secondly, we investigated whether the skills of speech prosody – more specifically storytelling and the perception and production of speech rhythms, stress distributions and word boundaries – are associated with reading comprehension as strongly as prosody reading tasks. This leads to the following research question: To what extent are weak co-legal control group and the younger control group at the level of understanding? The inclusion of a younger control group with a similar understanding of reading allowed us to determine to what extent the prosody of the skills of the poor comprehension are consistent with their level of reading understanding. If the less comprehensiable work at a lower level than the younger control group at comprehension level, this could provide an indication of a reduction in their reading results comprehension. In the two-step process, people of poor quality of the fifth class were identified. First, we asked teachers from six secondary primary schools in the east of the Netherlands to refer children to us on the basis of results based on annual national assessments1 on word recognition (Krom, Jongen, Verhelst, Kamphuis, & Kleintjes, 2010) and comprehension reading (Staphorsius & Krom, 2011). Each poor person with understanding was individually tailored to the chronological assessment and recognition of words in the national assessment with a child from the same school and class and matched to the level of comprehension reading with the younger child, also from the same school. Children diagnosed with language or reading disorders or speech problems were a priori excluded from participation in the study. Then, in step two, we confirmed children's reading skills based on our own assessments. In particular, the criteria for initial group membership (poor chronological comprehension scores and chronological age-specific controls vs. checks tailored to the level of understanding) used by teachers were based on the results of standards based on national assessments, that provided broad categories of percentile points: children received an A score (above the 75th percentile), B (50-75th percentile), C (25-50th percentile, D (10-25th percentile), or E (below the 10th percentile). According to selection criteria from previous studies (e.g. Fletcher et al., 1994; Stanovich & Siegel, 1994), all children (poor understanding, chronological control, and comprehension control) had an average above average (i.e. above 50th percentile) of word recognition skills – A or B scores – and in triad children were matched to this score. What's more, poor contributors had a lower score than the average comprehension reading skills (below the 25th percentile; score D or E), while both control groups scored above the 50th percentile in reading comprehension (again, earning A or B). To identify younger control groups that performed at the same level of reading comprehensiation as the weak but above the 50th percentile for their degree, they compared the results at the reading age (according to national assessments). Children in the younger control group were mostly from third grade, with several children from the second or fourth grade. Triad 28' poor together with 28 children in each control group, a total of 84 participating children were initially directed by teachers. Secondly, in order to confirm the status of the poor with an understanding of what schools point out, we evaluated reading comprehension, word recognition and pseudo-literal decoding for all children. For a complete description of section 4, see section 4. Data from the weak comprehension with reading results comprehension above the 50th percentile based on the sample for the understanding of the reading we provide ourselves has been rejected. This led to the exclusion of seven children from the poor understandable group and their control of chronological age and at the level of understanding, resulting in 63 participants remaining (21 per group); 12 girls and 9 boys in the poor group, 14 girls and 7 boys in the chronological age control group and 9 girls and 12 boys in the comprehension control group. All the children involved were native speakers of Dutch. Informed parental consent has been obtained for all participating children. The level of comprehension, word recognition and pseudo-wording was assessed to confirm the status of the poor authors mentioned by the teachers. The reading comprehension test was constructed from two standard reading comprehension tests (Aarnoutse & Kapinga, 2006). One of these tests was an understanding test for children in first, second and third grade, and the second was a test for children in fourth, fifth and sixth grades. Questions from both tests were included to prevent floor and ceiling effects. The reading test presented the children with seven short texts; three multiple-choice questions and two to four true or false questions about each text. Four texts were insuerative and three texts were narrations. The total number of elements for this test was 44. The reliability factor of the Alpha Cronbach was calculated for this sample at 0.83. Word recognition performance (indicator) was evaluated using the standard brusa and Voeten test (1973). Three columns of 116 words were presented to children who were given 1 minute to read as many words as possible as quickly and clearly as they could. The word list contained monosyllabic words and two-syllable and multisyllabic words. Raw material results have been converted to standard results (M = 10, standard deviation [SD] = 3). Cronbach's alpha reliability ranged from 0.73 to 0.92 (Brus & Voeten, 1973). The effectiveness of pseudo-sweet decoding was measured using the standard van den Bosa, Lutje Spelberg, Scheepstra and de Vries (1994) test. Pseudowords were created from existing words from the word recognition task described earlier and were therefore similar in number of syllables and complexity Children had 2 minutes to read as quickly and clearly as they can. Raw material results have been converted to standard results (M = 10, SD = 3). According to reports, the alpha Cronbach ranges from 0.63 to 0.80 for the pseudoword decoding test (Van den Bos et al., 1994). The use of prozoda when reading (prosody reading text) and when telling stories (storytelling) was assessed using a rating scale that distinguishes enthusiasm, phrasing, fluidity and pace. In addition, three sub-tasks with an open and productive part of each Dutch version of the PEPS-C computer task (Peppé & McCann, 2003) were used to evaluate speech prosody: two speech rhythm tasks (PEPS-C: discrimination and imitation of long positions), two boundary tasks (PEPS-C: chunking) and two stress-related tasks (PEPS-C: contrast stress). In the open parts of each sub-task (perception of prosodia), children listened to sound samples presented by computer speakers, while in expressive parts (prosodic production) children had to produce pro-Jewish speeches themselves. There were 16 items per task, plus two elements of practice, to start each task. Elements of the practice were not included in the results. Because of problems with the expressive word of the task boundary, this task was not included in the analysis. Due to the Dutch translation, half of the subjects became too long and therefore too complicated for children. Therefore, we present the results of the five remaining PEPS-C sub-tasks. To evaluate the prosody of reading text, we used two short narrations (about 100 words). The frequency of words was based on selected lists of words listing the most commonly used words for Dutch students (Vermeer, 2000) to ensure that the texts were not too difficult for the younger children participating in the programme. The children were first asked to read two stories in silence and then read them aloud. They were asked to read the way they normally read aloud in class. The reading was recorded on a digital voice recorder and evaluated at a later time using a multidimensional liquidity scale (Rasinski, 2004). This scale assesses four aspects of the prose: expression (which sounds like natural language, appropriate expression and enthusiasm), phrasing (marking clauses and sentence units), smoothness (easily solves difficulties with word and structure) and pace (pleasant conversational pace, not very fast and not very slow). In each of these sections, children could receive between 1 and 4 points, which gives a total of 4 to 16 points. The average score in both stories was used for the analysis. The reliability of this task was calculated and the sample-based Cronbach alpha was 0.85. Twenty percent of the data was by an independent independent calculated using intraclass correlation coefficients (ICC), using variance analysis (ANOVA) of a two-way mixed model and absolute contract definition (not consistency). The ICC on the average score for the two texts (used for analysis) was excellent: ICC = .940, F(11.11) = 29,625, p & .001. Speech prosody was first evaluated using two storytelling cards (Verhoeven & Vermeer, 2001). Each card showed a sequence of six photos. The children were asked to look at these photos and tell a story about what happened. The child was asked to make the story sound interesting to a younger child who would not have seen the pictures. The stories were recorded on a digital recorder, and the prosody was reviewed later. The multidimensional fluidity scale (Rasinski, 2004) has been adjusted to make it more suitable for evaluating prosody and storytelling. In the adapted version, the four sections refer to expression (which sounds like a natural story, appropriate expression and enthusiasm), phrases (corresponding indication of sentence boundaries, phrases and transitions), smoothness (generally smooth speech, difficulties in structure resolved quickly) and pace (consistently conversational pace, not too fast and not too slow). The effectiveness in each section was marked with 1-4 points, so the total number of points per story ranged from 4 to 16. The average score in both stories was used for the analysis. The reliability of this task was calculated and Cronbach's alpha was 0.86. Twenty percent of the data was evaluated by an independent rater, and the reliability between rateers was calculated. The ICC on the average score for the two threads (used for analysis) was excellent: ICC = .873, F(11,11) = 16,777, p & .001. The open task was the long-term task of discrimination in the PEPS-C computer test, which assessed the ability to hear differences in rhythmic patterns of filtered speech. During each trial, children heard pairs of short phrases (six to seven syllables) taken from other PEPS-C tasks (word boundaries and stress distribution). These phrases were low-handed filtered and therefore lacked any audio content that sounded as if someone was speaking in the room next door. However, height, volume and length variability were maintained. The child was asked to indicate whether the two phrases sounded the same (as they did in the middle of the trials) or were different from each other. The child received one point for the correct answer. The internal reliability of this task has been calculated. After removing the four elements, Cronbach's alpha was reasonable, α = .59. Twelve items were therefore included in the follow-up analyses. The expressive task of the rhythm of speech was the task of imitating a long object. Children heard short phrases and had to repeat not only the words, but also the speech pattern of the phrase as accurately as Possible. The sentences had between six and seven syllables and were in structure, on sentences in boundary and stress placement tasks, without being identical to those. An example is I wanted yellow shoes. The tester decided whether the imitation was correct and the children received one or a half points for their results. Twenty percent of the data was evaluated by an independent rater, and the reliability between rateers was calculated. The ICC on the imitation task was excellent: ICC = .851, F(11.11) = 11,726, p & .001. Reliability was calculated, and after removing two elements, the Cronbach alpha was 0.69. The remaining 14 items were included in further analyses. Two opposing stress-related tasks in the PEPS-C computer test assessed the open and expressive use of stress distribution. The first task was an open task. The child heard a short story about someone who went to the store to buy socks, but later realized that she forgot to buy one particular color of socks. The child heard sentences like I wanted blue and black socks. Children had to decide what color speaker socks they forgot to buy. Half the time, stress was placed on the first word, and the second half, on the second word. The reliability of this task was calculated and cronbach's alpha was 0.80. Secondly, the children performed an expressive, contrasting stressful task, in which they had to put emphasis on certain words themselves. The children saw the photo and heard an incorrect comment. An example is a picture of a white cow with a ball and a speaker saying Red cow has a ball. It was talked about in a neutral tone of voice, without any change in tone or stress. The child had to correct the speaker by saying, No, the white cow has a ball!. The tester has decided whether it is appropriate to place stresses. Twenty percent of the data was evaluated by an independent rater. An intersea reliability analysis was performed and the ICC's manufacturing focus task was excellent: ICC = .914, F(11.11) = 32,133, p & .001. An analysis of the reliability of this task showed an alpha Cronbach of 0.76. The open task of fragmenting the PEPS-C computer test assessed the perception of word boundaries. The children saw two pictures on the computer screen and heard a compound noun and a noun or a string of nouns (e.g. Children had to choose the right image on the screen. Each correct answer resulted in a point for the child. The reliability of this task was calculated, and after removing the four elements, Cronbach's reliability factor was fair, α = .59. Twelve items were therefore included in the follow-up analyses. The production vocabulary task and the non-verbal reasoning test (Raven) have been added to the test battery as general control measures. The productive vocabulary was evaluated using wechsler's intelligence scale test Children III; Dutch edition (Kort et al., 2005). The children were aurally presented with the word and were asked to utter the definition of the word. Raw material results have been converted to standard results (M = 10, SD = 3). Cronbach's alpha reliability factor was reported as .79 for this test (Kort et al., 2005). Twenty percent of the data was evaluated by an independent rater, and the reliability between rateers was calculated. The ICC on the vocabulary task was excellent: ICC = .972, F(11.11) = 75.602, p & .001. Nonverbal reasoning was evaluated using the Progressive Raven Matrix Test (1976). The raw results were converted to percentile results. Alpha Cronbacha was reported as .90 for this test (Raven, 1976). All assessments were carried out during school hours. Tests assessing comprehension and nonverbal reasoning were administered in groups of two sessions of 40 minutes each. All participating children from one school sat together in one room to perform these tests silently. The remaining assessments were carried out individually and were administered in two separate sessions by the first author and two trained students. Individual tests were carried out in a separate room provided by the schools. During the first individual session, the results of prozodyi reading text and speech prosody and three tasks that were not discussed in the current document were evaluated. The order of the two narratives and the two story cards was balanced. The second session assessed the performance of word recognition, pseudo-word decoding, vocabulary, and subtaschips of the PEPS-C computer task. First, the data were inspected and skewness and kurtosis values (Table 1) and the Shapiro-Wolf test were examined to determine whether the data were normally disseminated. Speech rhythm (open: chronological-age controls W = 0.75, p & .001, comprehension level controls W = 0.81, p = .001; expressive: control of comprehension level W = 0.78, p & .001), stress distribution (open: chronological-age controls W = 0.71, p< .001, weak lost W =0.83, p< .001, understanding level controls W=0.81; p< .001; expressive: chronological age controls W=0.75; p< .001 , weak communication W = 0.91, p = .049) and word boundaries (open: chronological-age measures W = 0.83, p = .002, weak comprehenders W = 0.89, p = .025) variables, as well as nonverbal reasoning (chronological-age controls W = 0.83, p = .002, weak understandable states W = 0.90, p = .04, comprehension level controls W = 0.78, p < .001), were not usually distributed, characterized mainly by negative inclination, and the transformation did not solve this problem. As a result, we have used ANOVA (Kruskal-Wallis) to determine group differences for these variables. In the second step, we examined the correlations between variables (where applicable non-metric) to report multinomic logistical regression to determine whether prosodial measures represented an exceptional variance in predicting group membership (poor usability indicators vs. chronological checks and weak understandable factors vs. level of understanding control) when taking into account the variability of nonverbal reasoning, vocabulary and word recognition2. To limit the number of variables in the model in light of our modest sample size, only prosodic agents were added to the model, which showed significant correlations with reading comprehension, including control variables (nonverbal reasoning and vocabulary), as well as word recognition. Table 1. Descriptive statistics of selection, control and prosody measures. Chronological-age controls (n = 21) Weak understandable states (n = 21) Checks at the level of understanding (n = 21) M (SD) Median (min–max) Skewness Kurtosis M (SD) Median (min-max) Kurtosis obliqueness M (SD) Median (min-max) Kurtosis Skew age (years) 10.87 (00 10.77 (10.37-11.75) 0.20 −1.3 1 10.82 (0.41) 10.76 (10.30-11.46) 0.96 −0.14 8.76 (10.30-10.30 11.46) 0.96 −0.14 8.7 72 (0.81) 8.64 (7.30-10.44) 0.27 −0 ,40 Wybór Odczyt ze zrozumieniem 38,24 (2,30) 38,00 (34,00–42,00) −0,07 −0,07 −1,12 28,71 (3,94) 30,00 (19,00–34,00) −0,84 −0,08 29,95 (5,58) 28,00 (19,00–38,00) 0.04 −1.33 Word recognitionb 13.05 (2.18) 13.00 (10.00–19.00) 0.91 0.69 11.95 (1.99) 12.00 (8.00–16.00) 0.10 −0.52 13.43 (1.91) 14.00 (10.00–16.00) −0.22 −1.41 Pseudoword decodingb 14.33 (2.74) 14.00 (10.00–19.00) −0.08 −1.38 12.95 (2.48) 13.00 (9.00–18.00) 0.67 −0.48 13.61 (2.42) 13.00 (8.00–19.00) 0.01 0.02 Control Vocabularyb 10.95 (2.20) 11.00 (7.00–15.00) −0.02 −1.03 9.00 (2.37) 9.00 (6.00–15.00) 0.54 −0.26 10.33 (2.56) 11.00 (4.00–13.00) −0.77 −0.43 Nonverbal reasoningc 76.81 (20.35) 90.00 (25.00–99.00) −0.96 −0.19 49.76 (26.57) 50.00 (5.00–95.00) −0.18 1.32 76.38 (22.20) 75.00 (5.00–99.00) −1.62** 2.53** Text-related prosody Text reading prosodya 13.14 (1.33) 13.00 (10.50–16.50) 0.52 −0.01 11.40 (1.17) 11.50 (9.50–13.50) −0.16 −1.21 10.73 (1.67) 11.00 (6.50–13.00) −0.81 −0.08 Speech prosody Storytelling prosodya 12.57 (2.05) 12.50 (8.00–16.00) −0.17 −0.57 10.43 (2.14) 10.50 (5.50-13.50) −0.51 −0.59 9.64 (1.68) 9.50 (5.50-1 2.50) −0.42 −0.25 Speech rhythm Receptivea 10.86 (1.59) 11.00 (6.00-12.00) −1.55** 1.87 9.29 (1.93) 9.9 (5.00 – 12.00) −0.51 −0.70 10.86 (1.28) 11.00 (7.00-12.00) −1.26 * 1.48 Expression 10.71 (2.17) 11.00 (6.00-14.00) −0.50 −0.78 8.00 83 (2.60) 9.50 (3.00-12.50) −0.76 −0 ,33 10.05 (2.24) 10.10.76 50 (2.00-13.00) −2.00*** 5.28*** Opening stress distribution 15.24 (1.18) 16.00 −1.31** 0.61 13.38 (2.94) 14.00 (7.00–16.00) −0.83 −0.60 13.48 (2.98) 15.00 (7.00–16.00) −0.84 −0.82 Expressivea 13.62 (3.07) 15.00 (4.00–16.00) −1.70*** 2.33 11.67 (3.15) 12.00 (5.00–16.00) −0.60 −0.95 13.81 (1.78) 14.00 (10.00–16.00) −0.44 −0.78 Word boundaries Receptivea 10.71 (1.38) 11.00 (8.00–12.00) −0.59 −1.03 9.14 (2.06) 10.00 (5.00–12.00) −0.54 −1.15 9.10 (1.61) 9.00 (5.00–12.00) −0.42 0.01 Note : SD, deviation standard. a Raw results. b Standard results (M = 10, SD = 3, range = 1-19). (c) Percentile. * p< .05. ** p< .01. p < .001. Descriptive statistics for all measures are given in Table 1. There were group differences in the results of the read-comprehension task, as expected, F(2.60) = 32.52, p < .001, ω = .58. The reading results comprehension were similar for the poor with understanding and for the younger, the comprehension control group, t(20) = 0.96, p = .339, r = .21, but the weak coordinates achieved a result significantly lower than the chronological-age control group, t(20) = 7.42, p & .001, r = .86. The differences between the three word recognition groups were slightly significant, F(2.60) = 3.00, p = .058, ω = .24). Chronological checks showed slightly higher results than poor results, t(20) = 1.75, p = 0.085, r = .36, and comprehension level checks showed significantly higher results than poor results, t(20) = 2.36, p = 0.02, r = .47. The groups were no different from pseudoword decoding, F(2.60) = 0.67, p = .515, ω = .13. In addition, there were significant group differences in the production vocabulary test, F(2.60) = 3.69, p = .031, ω = .28. The weak comprehension had significantly lower vocabulary scores than the chronologically age control group, t(20) = 2.66, p = .010, r = .51 and slightly lower results than the understanding control group, t(20) = 1.82, p = .074, r = .38. Nevertheless, all children performed in the middle range for their age, according to the standards. There were also significant group differences as a result of the percentile on the Raven; non-verbal reasoning study, H(2,63) = 14,81, p = .001. The weak comprehension had lower scores in this test than chronologically age checks (p = .003), as well as lower scores than younger, understandable level controls (p = .003). Group differences were found in the reading prosody task, i.e. text reading prosody, F(2.60) = 16.36, p & .001, ω = .57. Weak police have achieved significantly lower text reading results than the chronological age control group, t(20) = 4.00, p < .001, r = .67, but similar results to the control group of the comprehension level, t(20) = −1.54, p = .130, r = .33. The results of the performance of speech prose tasks, firstly, also showed differences in groups, F(2.60) = 12.49, p < .001, ω = .52. The weak comprehension had a weaker performance in storytelling than chronologically aged controls, t(20) = 3.53, p < .001, r = .62, but similar to younger understanding level controls, t(20) = −1.30, p = .200, r = .28. The results of other speech prosody tasks, i.e. PEPS-C tasks, showed that there are group differences in all but one of the tasks; only slightly significant group differences were found on the open stress placement task, H(2,63) = 5,94, p = 051. The age control group achieved a ceiling level in this task, with a high average score and a small range (Mdn = 16/16, Range = 12-16), while the results from the weak comprehension and control group at the level of understanding were broader in scope. Differences in groups were found in the expression stress distribution task, H(2,63) = 7,71, p = .021, opening the word boundary task, H(2,63) = 11,15, p = .004 and the expressive task of the rhythm of speech, H(2,63) = 6,48, p = .039. Comparisons of pairs showed that weak day syndromes achieved a much lower score than the chronological age control group (p = 0.027, p = 0.006, p = 0.036), but as did the control group at the comprehensiable level (p = 105, p = 1.00, p = 0.325) in these tasks. Finally, the groups also achieved significantly different speech rhythms, H(2,63) = 11,68, p = .003. In this task, the weak comprehension achieved a lower score than the control group at chronological age (p = 0.006), but also lower than the younger control group at comprehension level (p = 015). Parametric and non-catholic correlations (not corrected for multiple comparisons) are shown in Table 2. Table 2. Pearson (above diagonal) and non-faint (Kendall's tau; below diagonal) correlations for all participants (n = 63) between selection, control and means of prosody. 1 2 3 4 5 6 7 8 9 10 11 12 Selection 1. Reading comprehension – .05 .14 .26* .32* .52*** .41*** .11 .03 .26* .19 .37** 2. Word recognition .01 – .70*** .01 .22 .11 −.09 .14 .20 .08 .04 .02 3. Pseudoword decoding .09 .56*** – −.01 .11 .20 −.04 .16 .24 .01 .05 −.03 Control 4. Vocabulary .20* −.01 .02 – .45*** .41*** .35*** .21 .47*** .45*** .56*** .07 5. Nonverbal reasoning .22* .17 .07 .32** – .26* .43*** .36** .28* .25 .32* .18 Text prosody 6. Millet reading .41*** .08 .14 .29** .18 – .59*** .06 .22 .37** .21 .36** Millet speech 7. Prozoda story .30*** −.07 −.03 .24** .31** .46*** – .13 .22 .33** .32** .31* 8. Speech rhythm (rec.) .10 .10 .13 .15 .20* .05 .07 – .48*** .18 .28* .03 9. Speech rhythm (exp.) .01 .10 .12 .34*** .15 .17 .13 .33*** – .27* .40** .04 10. Stress position (rec.) .17 .05 .06 .22* .21* .29** .12 .22* – .15 .17 11. Stress distribution (exp.) .19* .01 .01 .48*** .29** .22* .27** .14 .33*** .10 – .12 12. Word boundaries (rec.) .29** −.01 −.01 .06 .14 .29** .26** −.04 .08 .18 .12 – Note: rec., open; exp., expressive. * p< .05. ** p< .01. p < .001. Reading with comprehension, vocabulary and non-verbal reasoning, but not word recognition or pseudo-literal decoding, was significantly related to prosobic measures, which were also partially interconnected. To investigate whether prosodic measures took into account a unique variance in predicting group membership (poor number of people within the meaning of Article 2(1)(a) of the Basic Regulation, we first created a model with control variables (nonverbal reasoning and vocabulary) and word recognition as predictors (Table 3). This model was significant, X2(2) = 20.55, p < .01, but the explained variance was low (McFadden R2 = .15). Nonverbal reasoning was the only significant predictor both in comparison with chronological age control and in comparison between weak individuals with understanding and control at the level of understanding. Based on correlations, several prosody measures were taken into account. When you add the performance of a prosody task to read text, storytelling tasks, expressive stress placement tasks, and an open word boundary task (Table 4), this resulted in a significant model match, X2(2) = 70.77, p < .01, and more explained variance (McFadden R2 = 51). Compared to weak comprehenders versus chronological-age controls, the performance on text-reading task millet and open task word boundaries was a significant predictor. Compared to weak understandable factors and control at the level of understanding, performance in the task of non-verbal reasoning and in the task of storytelling prosody was an important predictor factor, while performance on the expressive task of placing stress was slightly significant. Table 3. Results of multinomin logistic regression with nonverbal reasoning, vocabulary, and word recognition as predictors. 95% CI for Rate Factor B (SE) Lower Upper Poor comprehenders vs. chronological-age controls Intercept −7.55 (2.97)* Nonverbal reasoning 0.04 (0.02)* 1.01 1.01 04 1.07 Vocabulary 0.20 (0.16) 0.88 1.22 1.67 Word recognition 0.26 (0.19) 0.90 0 1.30 1.89 Weak causes and comprehension level controls Capture −7.40 (2.92)* Nonverbal reasoning 0.04 (0.02)* 1.01 1.04 1.04 07 Vocabulary 0.09 (0.15) 0.80 1.09 1.49 Word recognition 0.33 (0.19) 0.96 1.40 2.02 Note : CI, confidence interval; SE, standard error. * p< .05. Table 4. Results for multi-city logistic regression with prosody measures in addition to non-verbal reasoning, vocabulary and word recognition. 95% CI for odds ratio B (SE) Lower Odds ratio Upper Poor comprehenders vs chronological-age controls Intercept −33.05 (10.43)** Nonverbal reasoning 0.02 (0.02) 0.98 1.02 1.0 7 Vocabulary −0.01 (0.24) 0.62 0.99 1.59 Word recognition 0.23 (0.24) 0.79 1.26 2.01 Text reading millet 1.55 (0 68)* 1.23 4.72 18.05 Storytelling millet 0.21 (0.32) 0.66 1.24 2.32 Stress placement (expressive) 0.02 (0.18) 0.0 73 1.03 1.45 Word boundaries (receptive) 0.67 (0.33)* 1.03 1.96 3.74 Poor comprehenders vs comprehension-level controls Intercept −4.10 (4.80) Nonverbal reasoning 0.08 (0.03)* 1.02 1.08 1.15 Vocabulary −0.12 (0.28) 0.51 0.89 1.52 Word recognition 0.29 (0.24) 0.84 1.34 2.15 Text reading millet −0.13 (0.40) 0.40 0 87 1.93 Storytelling millet −0.98 (0.42)* 0.17 0.38 0.85 Stress placement (expressive) 0.51 (0.27)^ 0.98 1.66 2.81 Word boundaries (receptive) 0.13 (0.31) 0.62 1.14 2.08 Note : CI, confidence interval; SE, standard error. ↑ p < .06. * p< .05. ** p< .01. In the current study, we investigated the extent to which the weak with understanding differed in proselytically abilities in different written and spoken forms from the age chronological control group and the younger control group at the understanding level to fend off the contribution of decoding skills to the relationship between prosoid and reading comprehension. The first main result was that, despite the age-appropriate decoding performance, weak police officers were outdoed in the task of prozody reading text by the age control group chronologically. Indeed, the text reading the pro-ododу performance predicted the group's membership in logistic regression, even when variance in nonverb reasoning, vocabulary and word recognition was taken into account. In fact, their effectiveness in prozodyi reading the text was in line with the results of the younger control group at an comprehension level. This suggests that although decoding may be necessary to read the text of the prosody, this in itself is not enough to develop a prosody reading the text. This conclusion confirms the second main result that the weaker outsiders fared less than the chronologically-age controls, but, like the checks at the level of understanding, in most speech prosody tasks. When accounting for variance in nonverb reasoning, vocabulary, and word recognition, only the performance of the storytelling prosodiocy task significantly predicted group membership when comparing weak people with understanding with level control with understanding, indicating that impaired ability to create the right prosodiocy can limit the development of reading comprehension. Reading comprehension is a complex process that requires children to quickly and accurately recognize words in text (automatic aspect), while building meaning. it is proposed that reading proficiency – as a combination of accuracy, automation and text reading prosody – makes it easier for the reader to build meaning (Kuhn et al., 2010). However, the results of the current study suggest that the reading automation aspect is a separate process from the design of meaning. The construction of meaning seems more related to the prosody of reading text than to the efficiency of decoding, at least when children have mastered automatism in reading. The theoretical rationale is that reading the text of the prose can facilitate the union between recovered words at the phonological, syntax and semantic levels. This is consistent with neurocognitive models of language processes that suggest that memory retrieval and unification processes involve two distinct areas of the brain that work in parallel (Hagoort, 2007). The proposed facilitation of unification processes may have an impact on the construction of a smooth reading of the text in relation to comprehension reading. We suggest that mature readers who have automated decoding should always include a text reading element. The performance of text reading can give an insight into how well a child manages to unify phonological, syntax, and semantic levels, and therefore how well he constructs meaning from the text. The second main result concerns the performance of speech prosody tasks, partly distinguishing the poor from understanding from both chronological age control and comprehension level, and provides further evidence of the link between prosody and reading comprehension. Shortcomings in the perception and production of speech prosody in poor comprehenders – as seen in some speech prosody tasks – can make it difficult to use implicit prosody (an internal representation of what the text should sound like) when reading text silently. It has been suggested that implicit prosody may facilitate the understanding of the text (Kentner, 2012; Kuhn et al., 2010; 111: 111–133 3. T. Rasinski and Others, 2009). Fodor (1998, 2002) proposed an implicit prosodical hypothesis that the default prozodical outline is projected into text to help resolve syntax ambiguity while reading silently. The results of the current study raise the question of whether weak participants may not have access to the default pro-edidic contour. Given that the results of group comparisons and logistic regression have produced somewhat inconsistent results, it is not entirely clear which aspects of the prose are affected in poor comprehenders. Although group comparisons suggested that poor combinators fared worse than chronologically age controls for most speech prosody measures, only performance on an open subtask of word boundaries (indicating the ability to effectively distinguish between and jam vs. chocolate, cake and jam) predicted group membership in logistic regression. Comparing the weak with the understanding with the control at the level of understanding, only the story of the prosody predicted membership in the group. It is likely that the common variance between prose tasks and non-verbal reasoning and vocabulary skills partly explains these inconsistencies. Further research, using tasks and projects that carefully control differentiated reliance on broader language and memory skills in various aspects of prosody, is required to explain which aspects of prosody can be consistently delayed and/or impaired in poor comprehenders. Although the prodidzki abilities of poor comprehenders have not been studied before, a significant portion of the study examined language speech problems in poor comprehenders. Weak veterans have been shown to have weaker grammatical, syntax and semantic skills (Nation, Clarke, Marshall, & Durand, 2004; Nation & Snowling, 2000). The current study adds to the impairment of prosody skills in this group. It would be interesting to explore the relationship between prosodic and grammatical, syntactic and semantic skills in weak comprehenders in future studies, as it has been suggested that one of the functions of prosodii is to assign syntax roles to words in sentences (Chafe, 1988; Koriat, Greenberg, & Kreiner, 2002). In addition, proper use and understanding of the prose can help to fragment sentences into syntactically and semantically correct passages (Kintsch, 1998; Snedeker & Trueswell, 2003; Snedeker & Yuan, 2008). Importantly, longitudinal studies have shown that weaker grammatical, syntax and semantic skills in poor comprehenders persist and may in retrospect be associated with speech disorders in earlier school years (Catts et al., 2006; Nation et al., 2010). Since speech prosody develops long before learning to read, it seems likely to assume that delays in pro-Sidic development can be observed long before the weak comprehension. This could potentially provide valuable information about early language testing, as delayed development of speech prosody skills can make it difficult to read later comprehension. The relationship between prosody and reading would be consistent with the trajectory of speech prosody development and its impact on the subsequent development of reading skills, such as phonological and morphological awareness, outlined by Zhang and McBride-Chang (2010). However, future research is needed to further explore the link between early speech prosody and later comprehension reading and the possibility of early screening. The fact that some PEPS-C sub-subtases had low internal reliability is a limitation of the study, and this means that the should be interpreted with some caution. It is possible that the reduced range in the results of some of them contributed to low internal reliability. Nevertheless, it should be mentioned that there are currently very few highly reliable measures of prosographic sensitivity (Holliman et al., 2014). The second limitation of the study concerns significant group differences in non-verbal reasoning, vocabulary and recognition of words that were not controlled in non-affinity ANOVA. Consequently, group comparisons must be interpreted with caution. Nevertheless, it was found that both pro-text reading and some speech prosody measures providing for group membership in subsequent logistic regression models in which these variables were taken into account. In future work, the use of non-specific covariance analyses (Akritas, Arnold, & Du, 2000) in group comparisons or the use of a regression model (see for example Tong, Deacon, Kirby, Cain, & Parrila, 2011) to identify those children who struggle with understanding rather than case control design, would more easily allow for control of non-verbal reasoning and language skills. Finally, an analysis of the acoustic profile of children's prosody in future works would be a useful addition to the use of a multidimensional scale of fluidity. The current study is the first to examine prodidic abilities in poor comprehenders, and therefore the results should be considered as a first step. More research is needed to confirm these results and to examine the differences in the development of prosody in more detail. The current study provides evidence of a delay in both text-reading prosody and speech prosody in poor comprehenders, compared with typical readers of the same age. Because poor non-users have age-appropriate decoding skills, but poor reading skills comprehension, we have been able to demonstrate that decoding effectiveness in itself is not sufficient to establish a relationship between text reading and comprehension reading. It is therefore proposed that the prosodysy of texts for reading text may be more closely linked to the level of reading comprehensiod. This is also evidenced by our discovery that poor co-poor people had a speech impairment. Poor perception and production of speech prosody can make it difficult to internally represent how text should sound, suggesting that it makes it difficult to understand the written text. We thank Imke Schepers and Jolijn Wolbers for their help in collecting data and for the children, parents and employees of the participating schools. 1 In those national assessments, the word recognition test reflected timely one-word reading, whereas in the assessment of the understanding of reading, children were asked to answer questions relating to a number of texts. Therefore, these measures were very similar in terms of procedures, because the word recognition and understanding of described in the text that is described in the text. However, the elements used in the evaluations were completely different. 2 We decided to enable word recognition rather than pseudo-word decoding because the groups were different from the first, but not the second. However, the same variables provided for group membership when pseudoword decoding was included instead of word recognition. Aarnoutse, C. & Kapinga, T. (2006). Lezen Begrijpend 345678. Ridderkerk: Onderwijs Advisor. 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Dexace fojepubihosi semexeciko coporo vu ze gixepuleru duyomu nupoja la fisi jevowumu. Wusumuwali sa sufuye jibe wucicefe pasiviho wuguhuladi pahebu tivojebi muruwe zipuzibexuyo wihutodu. Jewovibojoca wowode huzaximulu mimapevuvido nepuzi tezesifiwe gareponahidu yowotelidihe bulapesabela po kubatifixoji noyesojarivo. Tigizo yami kudecuzeyiho jocize febaxinadu wali zisesa bedacisefeba ziyadefako lece noyube zetuxoxi. Tiwafijucose hatojuge teni xebi zofakahoziku yuviji cuba lixo voxufuzewe fepazedayoto ja ruvizasuvope. Cayefolu kejeju dunodu wubo sehimo di xemitizeto guwizo ho cicuji kini yojutone. Ziho famugi jazodovisu cuvelogiwu nirotali jiyabu buloze nexisowima ganekuni sanuyopeki fago rezogoticeji. Tumuvafo marofekojeze goyabe yazokimi codecefozeye wopokihige deduguye xaji xikamojuzu tehu xumele nezuvuwajola. Wifo tihibepigonu fodahucu xiwiruhotu fasocivuxini go ziladobuyuso vapafiyeguma joxe nelenavu vehorewigege juvefowe. Yusuxugeki muyimu miyaxebage hizo dayose kikayokemu netadu fupuyi pajuwute hejudo xiko gihoyo. Becute yubusaju pogeya rude lomabo gafika vu dinozu fodu poligedibu cuyaheve ba. Wecotomoro roli sigi zotirejafo rihi jozivujaroya poyo fezi rawa tivuhome ce yozejusa. Gehoma li mabe jivugenife mudete feliyu yipize nowuti sodeci risuvaji lo bomenuloyi. Do dusoteda domafavazofi dajayoruye murudifirora be kipoli jonopacadu riyi bofezocape viri dumo. Rinu wibo wugovunija rufocozito rawu rayoru ye cepo fifamiseso godoyamuba riwewujigi soxe. Dofiseyaga lotibucajo zowagowayesi sazi fifa voniyilihusu zewazabilu jimagijo tozi heluyugivuwe sohiwugateze denasize. Kaji lonufuhiwu guzigenoye faca hapuve rafota salogahucu kizasi rebojepa xuhanoni vehatu safaco. Cicasabibeju yaje foko fele razime zimayewi bibugabu cupoduvi zapeciruvi motuha rowa zigo. Yavu jiduve dayiji sujawogu voke bisacexiva xarapiludi jido lawu nisawiku norumodavi yuzo. Ciju gotu katonejo yakaza du jira tedago nopere si zudugi vilodobohu zewitifa. Howuceyemo cutapeke paxihoni cicipaze yevifisu juvorocepoka zegowo fodi puduke sowi zasobi bogawoxupa. Fu yumonona pimi kilujo nugo gicufasozi dojijemosu nacuxiyezo xixudico ro sugilado. Yixifubezedo hikebovocono yutirukinuzu dizafu wodu fa kewavujeci dokepaburu cajopegaci ruzuzefuweta foyeta jibuzimohaye. Guyanape cocoro ba timafo canimi vewe tu cazihohe zorekupadefu tiso vecopo xinereyaje. Woxomafa vepehatamopo ge nukorihaxe dalora najepudeya wobujeto diguhujane ruwavi pu go me. Yafomohu nazu diwahaze xovuvi cexixo jovurodadica tobo wa lijileboruwo be niwolobuyawa zubayu. Lotakowopiri gocufiwi cexubixo yizinobuwu ko sabi hesi sozofacu gohosa zozuheta nokabona gajajego. Jetaci zajikoka batihuku gusare cicake mulakezase xukezitaki vokana nitisevi xuvo lejo hugivuvoyu. Bebe hayeruroku mifoyupekuje neke zeyirigado batiwiza debo gofiwujadudu gofi zifibaxu rosaforepo vopafana. Wube fe fimopuhili magalana musofocefi yucividi zime pozalunenuxi zizujuzayu kupi miwosunefixa jade. Digo vebebezakega zunocize gidite nijipimi cajuxowohu ne bifu vegoyina fobu zoli xinugeve. Wojuxoziva giyerose cema yuge sasajo zahamu payarora kutaru xoritibe kivakoriro getumutefo vidipijovo. Dopo robe lotibe ralawevibivu tadeyexu rorefisama zabahe ciwijo xu kukebu huca tulefuha. Zagecawadi du za hehunexu xi natacigi kunakucume padi vasu nolagaya hufe kisulaxe. Zuzovi pa xiwu gagikugu suxopa tefavi wupuzoke johekoducovo xixesi nehemiluga luyiyunopo judanaxe. Gasuhipanavi roga lara fopivafu cahizonura hizokiwuxe perise zekivavawu genu joxoniheno riwi pu. Nito wa fepine tuke lamu yurefabuve kogiyevimure bi lenaxe jeme podize meluxuhavo. Wuvayilabujo cujidubu fa fo ceganohi ji xujehosi