

Perceptions of Animal Assisted Reading and its Results Reported by Involved Children, Parents and Teachers of a Portuguese Elementary School

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This article presents preliminary results of a longitudinal qualitative study of a small-sample trial of Animal Assisted Reading (AAR), designed to overcome reading difficulties of second grade children in an elementary school in Lisbon's outskirts, through reading sessions to a "listening dog". The AAR trial was carried out between October 2016 and June 2017. The article deals with findings concerning the participant schoolchildren's, their parents' and their teachers' perceptions before and after the trial was run, framed by Bronfenbrenner's bioecological theory of human development. I interviewed 12 subjects – five students, one parent of each of them, and two teachers – before and after the trial was run, in order to compare the children's initial and final self-concept regarding reading to others, as well as the expectations they, their parents and teachers held and their final assessments of AAR. I did a descriptive qualitative analysis of interview transcripts to extract and compare the relevant data on these items. Initially, all students had negative self-concept regarding reading, and all but one tended to avoid the task of reading aloud to others. After AAR, all but one appreciated reading aloud without fearing exposure. The initial expectations of students, parents, and teachers about AAR were very high to begin with, and in the end all stated those expectations had been met, acknowledging further benefits besides reading improvement. The findings suggest AAR had a positive impact in both the school and the family microsystems of the children's development.

Keywords: animal assisted reading, education, biophilia, bioecological theory, self-concept

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Changes in western societies, namely the introduction and broadening of compulsory schooling, gradually brought about a holistic view of learning and development processes, focused on each

child's development and needs (Woodhead, 2006). Children with reading difficulties are in the process of developing reading skills, and should therefore be considered as readers in development (Jaeger, 2017).

Currently, the need is stressed for early intervention, as international studies and reports indicate that insufficient development at early stages will impact negatively on a country's society (Irwin, Siddiqi, & Hertzman, 2007). Fonseca (2007) and Shonkoff and Bales (2011) corroborate this need, stating that brain plasticity, the ability to change behavior and the optimal level of stimulation tend to decrease as the person gets older (Whitebread & Coltman, 2015).

According to the Organisation for Economic Co-operation and Development (OECD, 2013), Portuguese schools do not place students at the center of the learning process. In order to change this, the Portuguese Council of Education (CNE) recommended that strategies to support children should be deployed at the earliest signs of learning difficulties in the first years of schooling (CNE, 2015). Strategies for coping with early learning difficulties are clearly needed, especially of such basic skills for further learning as proficient reading.

This article presents preliminary data about a trial application of one such strategy, that of Animal Assisted Reading (AAR), to a small sample of second grade seven year-olds attending an elementary school near Lisbon, in Portugal, who had been signaled by their teachers as underperforming in the acquisition of reading skills. While providing some background information on the AAR trial as a whole, this article will describe how the main stakeholders – the children themselves, their parents and their teachers – perceived the experience and its results. This aims to contribute to the ongoing scientific discussion on the topic in two ways. Firstly, by setting it in an ecosystemic framework that goes beyond the immediate context of AAR and by explicitly placing human-animal interaction as a relevant part of the ecosystem; and secondly, by emphasizing the participants' perceptions of the process and its results.

Conceptual Framework

According to Bronfenbrenner's (1976; 1994) bioecological theory, human development can only be understood by taking into account the whole ecological system within which it takes place. His ecological systemic model of human development is composed of four concentric environmental levels having the person as the center, the latter's personal development process being influenced by all ecological levels and their interplay. At the center of the model, the person is directly involved in the proximal interaction processes making up his or her everyday life contexts. Proximal interaction contexts (such as, in the case in hand, the specific interactions a child is daily involved in school and in the family), which are the main concern here, are organized within microsystems (the specific schooling organization the child attends and the specific family in which (s)he belongs).

The interconnections and reciprocal influences among microsystems (as those between a child's family and school) make up the enveloping mesosystem. They influence the proximal contexts within each microsystem and may generate new, intersecting proximal contexts (like "open school days"). Therefore, while all learning processes take place in proximal contexts, the way these operate is both enabled and constrained by each microsystem's organizational patterns and their mesosystemic interplays. The exosystem is a wider enveloping layer, composed of linkages and processes between environments, in some of which the person does not play an active role, but which indirectly impact on the person's mesosystem or any of its microsystems. Finally, the macrosystem encompasses all other systems, laying down the society's institutional patterns.

This research is directly concerned with the two school and family microsystems and with the mesosystemic relation between them, regarding the AAR. In spite of its labeled bioecological label,

Bronfenbrenner's theory remains remarkably anthropocentric (Lee, 2012; Melson, 2003). The definition of proximal contexts and processes, as well as recent research using his model in school contexts (Jaeger, 2017), emphasize human-human and human-object interactions. They do not explicitly address the relationships the human person may establish with non-human life forms, as distinct from objects. Nevertheless, these are undeniably an integral part of such contexts, just as cultural dispositions towards non-human life and nature as a whole are of macrosystems. The evolutionary "biophilia hypothesis" of a basic human propensity to affiliate with other living beings (Kellert & Wilson, 1995; Wilson, 1984) may indeed be understood as positing a macrosystemic constant in Bronfenbrenner's human ecology development model, and positive close human-animal relationships as expressions of that propensity in humans' varying proximal interaction contexts of which non-human animals partake.

In a literature review about psychological and physiological wellbeing in response to the exposure to natural landscapes and animal affiliation, Kahn (1997) remarked on children having an endless bond with nature, and noted that human-animal relationships can contribute to the understanding of Wilson's theory. Understanding children's development from this biocentric outlook is to take into account their relations with present animals, as well as humans (Melson, 2003). As significant others to the child, animals may promote a coherent construction of the self by being perceived as themselves coherent, reliable and authentic, while being decoupled from judgment roles and social pressure (Myers, 2007). As such, the animal provides a soothing interaction, making even neglected or abused children feel accepted and important, and perceive other humans as less threatening (Parish-Plass, 2008).

The argument for looking at AAR in this light is supported by the literature. The

connection and the interest children develop towards an animal in learning contexts may of themselves prove a motivation to learn (Hediger & Turner, 2014; Jalongo, 2015; Lenihan, Mccobb, Diurba, Linder, & Freeman, 2016; Levinson, Barker, Van Zandt, Vogt, & Jalongo, 2017; Lloyd & Sorin, 2014; Shaw, 2013). At the neurophysiological level, research has shown that being next to and interacting with a dog can bring about positive psychological effects, increasing attention and focus (Hediger & Turner, 2014), decreasing fear and anxiety, and leading to release a well-being related hormone, oxytocin (Odendaal & Meintjes, 2003). Beetz, Uvnäs-Moberg, Julius, and Kotrschal (2012) argued that while oxytocin release may be the main explanatory factor of such positive effects, it cannot explain them entirely, pointing out biophilia as a possible complementary explanation. Shiloh, Sorek, and Terkel's (2003) study found that the stress and anxiety-reducing factor of stroking an animal is its general quality of being alive, rather than the specific kind of animal, and that people benefit from such contacts regardless of holding different attitudes towards animals.

Within the school microsystem, reading and writing skills begin being introduced at the earliest stages, as basic acquisitions underpinning those of all school subjects (Buescu, Morais, Rocha, & Magalhães, 2015). At this stage, many children learn to read without difficulty. Others, however, are not able to learn through conventional education to the full extent of their potential (Fonseca, 2007). At the end of elementary schooling, children with reading difficulties show negative feelings about themselves that increase throughout schooling, affecting their self-concept and self-esteem, and reducing their motivation to overcome difficulties (Nascimento & Peixoto, 2012).

The school self-concept is what students think of themselves, according to the feedback they get about their school

outcomes. As the school is the stage of multiple ongoing interactions, a child's self-concept can change (Senos & Diniz, 1998). Baumeister (1999) defined self-esteem as the evaluative dimension of self-concept: while any perception about the self belongs to the self-concept, self-esteem is affected by the existence of judgment. Low self-esteem is related to negative emotional states, such as depression, anxiety, and shame (Brown & Marshall, 2001). Holt (1964) stated that children may not achieve good results in school due to fear of failing, disappointing or displeasing adults, and Ferrer and Fugate (2014) emphasized that parental criticism and judgment of children's performance in a task creates feelings of inferiority. When there is a perceived risk of failure in face of others who are perceived as judgmental, students may tend to avoid the task by withdrawing from effort, as a way of protecting their self-esteem (Nascimento & Peixoto, 2012).

According to Jalongo (2007), emotions regulate the effort of taking on a task as opposed to shirking it. Katzir, Kim, and Dotan (2018) recently argued that emotions, especially negative ones, have been overlooked in studies about reading. They found that children with low reading self-concept tend to be afraid of reading and to keep avoiding it at later stages, relating low reading rates with feelings of anxiety and worry. Children exposed to high levels of tension, frustration or anxiety tend to progress slower, as the ability to think, to elaborate information and to control behavior is impaired by high levels of the stress-related hormone cortisol (Portugal, 2009). This causes an increase in neural activity in regions of the brain related to fear, anxiety and impulsivity (National Scientific Council on the Developing Child, 2014), leading to detrimental changes in essential areas responsible for learning and memory (Lupien, McEwen, Gunnar, & Heim, 2009).

AAT and AAR in Schooling Contexts

AAR is a form of Animal Assisted Therapy. According to the International

Association of Human-Animal Interaction Organizations' definition,

Animal Assisted Therapy is a goal oriented, planned and structured therapeutic intervention directed and/or delivered by health, education or human service professionals [...]. Intervention progress is measured and included in professional documentation [...]. AAT focuses on enhancing physical, cognitive, behavioral and/or socio-emotional functioning of the particular human recipient either in the group or individual setting (IAHAIO, 2018, p. 5).

For decades now, AAT have been used in schools to improve on children's motivation, attention, and concentration (Fine, 2010; Friesen, 2012; Hediger & Turner, 2014; Zasloff & Hart, 1999), and reduce their levels of stress and fear (Wohlfarth, Mutschler, Beetz, & Schleider, 2014). Dotti (2015) argued that the presence animals reduces the children's levels of anxiety and agitation by creating affective complicity. In tasks involving reading aloud, listening dogs have been shown to promote a good environment and experience to students lacking in confidence, by providing a feeling of being heard and understood without judgment (Friesen, 2012). Such effects have long been associated to lower blood pressure and heart rate in children, reducing anxiety (Friedmann, Katcher, Thomas, & Lynch, 1983).

Schoolchildren participating in AAR programs with dogs have increased affective and behavioral involvement with reading (Swearingen, 2017) and improved their reading results over students in control groups (le Roux, Swartz, & Swart, 2014). Using an AAR program with dogs at an early stage has improved more on the results of struggling readers, as compared to later interventions (Levinson et al., 2017). Children attending this kind of program dropped out of school less often than children attending other kinds of reading

programs (Lenihan et al., 2016). Successful examples of dogs-assisted reading programs include the Reading Education Assistance Dogs (R.E.A.D.)[®] and the SitStayRead program. Such programs became very popular in schools, even among the children who did not take part themselves (Lane & Zavada, 2013). There is literature advising on how to incorporate a dog in a classroom and suggesting activities to be performed (Anderson, 2007; Lane & Zavada, 2013).

In spite of the literature reporting positive effects in school settings, the question on how the animal matters in this context largely remains unanswered (Marino, 2012). Meta-analyses have found no studies unequivocally documenting the pedagogical value of such activities and indicated that further investigation is required (Hall, Gee, & Mills, 2016; Nimer & Lundahl, 2007). The children's perceptions about the animal in the reading sessions may help in answering this question, and in understanding the processes established in this specific proximal context of the child's microsystem.

The Research

Research Context

This article presents preliminary findings about a trial use of dog-assisted AAR to help young children overcome shortcomings in their prior acquisition of reading skills. The trial was carried out over 28 weeks between October 2016 and June 2017, in a public elementary school located near Lisbon, in a predominantly lower middle-class environment. The school was a choice of convenience, since I am a teacher there myself. The trial followed a quasi-experimental design to compare reading-related behavior in AAR to conventional reading support sessions and the evolution of reading proficiency, among a purposive sample of fifteen children, seven of whom were my students.

All participating children were second-grade students who had turned seven years old during 2016. They had

succeeded in first-grade Portuguese language items, albeit underperforming in reading skills as measured by a standard test based on the Program and Curricular Goals of Portuguese Basic Education (Buescu et al., 2015). However, since the school had assigned all students who had the lowest score in the reading test to different reading support classes, their progress would not be comparable to that of the others. Therefore, those lowest-performing students were excluded from the trial sample.

The sample was divided into three groups, each composed of five children, chosen according to their initial reading proficiency scores so that within-group distributions of such scores were identical between the groups. The one group that concerns us here was assigned to AAR support sessions, another to standard teacher-supervised reading support sessions, while the third had no reading support sessions. The overall research design was chosen in order to compare the reading performance evolution of the AAR group with those of the two other groups, and the proximal interaction processes occurring in the AAR sessions with those in the classic teacher-supervised sessions. Students in both groups receiving reading support took one individual twenty-minute session each week throughout the period. Rather than attempting to assess the efficacy of AAR, the primary aim of the broader study is to analyze and understand the proximal processes taking place in AAR, as compared to standard teacher-supervised support sessions, which may contribute to such effects as reported in the literature.

The AAR sessions were implemented with the collaboration of R.E.A.D. Portugal[®] Cães&Livros [Dogs&Books] –, the only authorized entity to develop the R.E.A.D.[®] program in Portugal. Two teams took part in the AAR sessions, each comprising one specialist acting as dog handler and one therapy dog. Both dog handlers are women and hold post-graduation certificates in Animal

Assisted Therapy by ISPA – University Institute of Psychological, Social and Life Sciences, in Lisbon. Bagas, a male Labrador, and Pepper, a female Golden Retriever, were specially trained for this purpose, and both teams have passed a specific international exam for this kind of intervention, including child and animal welfare and related ethical issues. Handlers are trained to detect and deal with signs of stress or discomfort both in their dogs and the children, cutting sessions short if needed. Both dogs were introduced to the sessions setting beforehand. The R.E.A.D. teams always came in and out of the school when the children were in class, in order to prevent stress to the dogs. The doctoral project, including the research design and procedures have been approved by the Scientific Council of the School of Social Sciences and Humanities, the faculty governing board supervising scientific and ethical quality in research.

Aims

In the light of the conceptual approach underpinning the overall study, it is relevant to understand how the five children participating in AAR and their proximal counterparts in the family and the school microsystems perceived reading to a dog in school, what expectations they formed, and how they assessed the perceived results. As part of that broader study, this article therefore has the specific aim of collecting and analyzing the expectations and perceptions of the dog-assisted reading activities and their efficacy, held by the children involved in the AAR sessions, their teachers, and their parents, before and after the trial. Children in the other two groups and their parents were therefore not considered here. Concerning efficacy, it mainly deals with the reported changes in the children's self-concept and their behaviors towards reading to others in proximal contexts, within both the school and the family microsystems.

Participants

The specific study underlying this article included 12 participants in all,

namely, the five children (two boys and three girls) in the group taking AAR sessions, each child's parent formally in charge of their schooling (four of whom were the mothers and one the father), and two of their teachers, both female (I myself being the third). All adults were counterparts to the children's everyday life at school and home. At first an unfamiliar experience, the trial took place regularly in familiar school settings over an eight-month period. We therefore believe our choice of participants to have met Bronfenbrenner's (1976) requirement that proximal processes being studied are a familiar part of the subjects' environment, over a significant amount of time, and involving others with whom they have actual connections.

In the description of results below, the five children will be designated by the letter A followed by the number 1 to 5, in increasing order of their pre-trial reading scores. A1 and A2 are boys and both feared dogs. A3, A4 and A5 are girls, none of whom reported to be afraid of dogs. A2 and A4 are of immigrant descent, the former's mother having migrated from a Portuguese-speaking country and his father, as well as the latter's parents, from East European countries. A3 and A4 lived in single-parent households, all other living with both parents. The parents are designated with PA followed by the number of their respective child; all but PA3 are mothers. The two teachers are designated as T1 (of A5) and T2 (of A1 and A3), I myself being the teacher of A2 and A4.

Data collection

Since I sought to "interpret rather than measure and understand reality as it is experienced by individuals [...]" (Craveiro, 2007, p. 202), I opted for a qualitative descriptive approach using semi-structured guide based interviews (Patton, 2002), followed by categorical content analysis (Bardin, 1994).

I have interviewed all 12 participants before the beginning and after the end of the trial, totaling 24 interviews. After having obtained the written consent of

the school board, I informed the children and their parents personally in meetings, and the parents in writing as well, about the broader study, its objectives and the steps to achieve them, including the planned interviews. During these meetings, I asked whether any of the children had allergies or fear of dogs. Two parents stated that their children had some fear of dogs, in spite of which they maintained their interest and consent in their children's participation in both the trial and this study, as did the concerned children. Some literature recommends not to engage subjects who fear dogs in dog-assisted activities (Dotti, 2014; Fine, 2010). Given the interest and consent of the parents and the children themselves, I nevertheless decided to include those two children in the group, subject to special care by the dog handlers during the sessions and to removing them from the trial, should the children or the dogs display signs of distress. Informed consent was obtained in writing for the participation of all children at all study stages, and both they and their parents were reassured that they might choose to abandon the study at any time.

Each child was interviewed individually in an empty classroom during recesses, away from noise and potential interruptions. In order to avoid time pressure during the interviews, only one child was interviewed per 30-minute recess. Even though recesses are much-appreciated recreation periods, none of the children either declined to be interviewed or answered hastily. The interviews with the parents were also carried out individually in an empty school classroom. Interviews with the teachers were also conducted at school and during breaks, according to their availability.

All interviews used common steering "guides" (Patton, 2002, p. 343) adapted to the different categories of participants and asking them to express their thoughts, feelings, expectations, and post-trial assessment about reading in school and at home, the presence of dogs in

school activities in general and the AAR sessions in particular. These scripts were not arrays of questions to be asked in a preset form and sequence, but checklists of topics, as described below, to be addressed in the course of the induced conversations, taking as much advantage as possible of conversation cues and keeping the interviews open to unanticipated information.

The pre-trial interview guide for children was focused on what school subjects they liked and disliked, their self-assessment and feelings about reading aloud to others, their reading habits at home and how their parents related to that, whether they owned a pet or had ever owned one, how they felt about the eventual presence of a dog in school activities, and what kind of reading help, if any, they thought a dog might provide them. The topics in the pre-trial interview guide for parents were their assessment of their children's attitudes towards reading and reading difficulties, their strategies, if any, to cope with them at home and the children's reactions to that, and their expectations and concerns about AAR sessions. They were also asked whether they would have been willing to pay for the latter if that were the case, even though they already knew the sessions would be provided free of charge. The pre-trial interview guide for teachers focused on their assessment of the children's reading difficulties, their prior knowledge of AAR, their expectations about the children's adherence to AAR and whether they believed the planned AAR sessions might benefit their students, as well as themselves.

The after-trial interview guides for all participants aimed to find out their opinions about the AAR results along similar lines to those of the previous interviews, in order to achieve a comparison with the pre-trial stage, as well as their perceptions on whether and how the AAR experience had impacted on the proximal interactions in their respective micro-systems, namely the family home and the

classroom. Concerning the children, it also aimed to understand if and how the perceived interaction with the dogs had affected their perceptions about the task of reading aloud to others. The main topics therefore were their recalling and assessment of the reading sessions with the dog, whether and how they perceived that the dog had helped them, their current assessment of, and feelings about the task of reading aloud, and any indirect benefits or harms they might associate with having interacted with the dog. The main interview guide topics for parents focused on the results they had observed in their children's willingness to read aloud and their reading skills, as well as any other indirect benefits or harms, and on their opinion on the possibility of introducing dog-assisted reading in schools. The interview guides for teachers aimed to gather their assessments about the AAR effects on their students during the school year, of the final results in reading skills and willingness to read to class or other indirect benefits or harms, and again of the possibility of introducing AAR in schools.

I did all the interviews myself. This allowed me to steer the conversations along the pre-established relevant topics, while avoiding too much direct questioning and providing leeway and encouragement for the respondents to pursue their own lines of thought and for following up on those as relevant, as recommended by Creswell (2013). Being an elementary teacher, professionally trained and used to interacting daily with children in this age-range and their parents, proved a major asset in the interviewing process. All interviews were audio-recorded, and those with the children used video as well, to which all interviewees and parents have consented.

Data processing and analysis

The audio records were transcribed and I subsequently coded the contents for qualitative analysis using categorical units, starting with a framework of broad categories based upon the themes in the

interview guides, which I refined, completed and re-coded inductively as the analysis proceeded (Bardin, 1994; Patton, 2002). I coded and analyzed the interviews separately for children, parents, and teachers, and later cross-referenced them in order to triangulate their discourses on common themes. Both coding and analysis were performed manually, without the assistance of specific software. As this is research solely carried out by one person, I had no means for hiring and training coders. Therefore, no cross-coding reliability analysis could be performed. The coding process was thoroughly reviewed and discussed with my thesis advisor.

Findings

Pre-intervention interviews

None of the students owned a dog or any other mammalian pet when the trial began, only two reported having fish and/or birds. All children, the two fearful ones included, displayed much enthusiasm when told that they would be reading to a dog. Three of them acknowledged that they needed help in reading (A1; A3; A4). However, when asked to imagine how the dog might help them, all had some difficulty, for instance because "dogs cannot speak" (A2; A3). Nevertheless, they were all pleased that they would receive this kind of support.

Most students said that they avoided reading to others. Only one mentioned enjoying the task of reading aloud, due to the need she felt of exposure to her teacher (A4). All others displayed clear signs of negative self-concept about reading, saying that they were afraid of being embarrassed by their mistakes in front of their schoolmates or their teacher (A1; A3) and in general that reading to others was a stressful situation for them: "I am a little stressed! Both in school and at home ..." (A2). The students' preferences in school subjects leaned away from Portuguese language: only the one who said she enjoyed reading aloud (A4) also said she liked this school subject. The other students chose either mathematics (A1; A2) or

sciences (A3; A5). In spite of acknowledging their difficulties to read aloud, their demotivation regarding Portuguese language classes was not mostly related to reading, but rather to writing tasks (A1; A2; A5), and one of the students stated: “I don’t find them much fun” (A3).

Their rejection to reading aloud was also reflected at home. Only one stated she read on her own initiative, albeit reportedly not meeting with great interest from the family, who preferred to engage in other kinds of activities (A5). All other students only read at home at their parents’ request, and one only when actually he was forced (A2). Almost all students reported that when they did read, they were encouraged by their parents and received positive feedback. Only one student reported his mother telling him not to stress over it (A2).

The two parents who had told us that their children were afraid of dogs (PA1; PA2) stated that they had consented in their participation precisely because they expected it would help the children overcome those fears. Three parents reported being aware that their children did not like, detested, or rejected reading to others (PA1; PA2; PA3). PA1, PA4 and PA5 reported that their children accepted being corrected, while PA3 felt that the child was increasingly retracting from reading in his presence. Only the student's mother whose son said he felt “stressed” mentioned an overtly negative reaction to corrections, as the child refused to keep on reading (PA2).

No parents, even those whose children feared dogs, mentioned any sort of concern about the AAR sessions. The mother of one of the latter (PA1) said that having met the R.E.A.D. specialists who would take part in the trial had made her very confident about it. All parents said that they would have invested financially, had the AAR not been free, although some said that would have depended on price (PA1; PA3; PA5). In spite of them knowing beforehand that the trial would be free, this alleged willingness to consider paying for

it, should they have to, seems to attest to their positive expectations towards AAR. At the beginning of the school year, the parents’ expectations were that their children’s reading would improve through the enrichment of vocabulary (PA4) and through oral communication. They believed this would lead to an increase in fluency (PA2; PA3; PA5) and motivation to read (PA1; PA2; PA5) and to benefits in other school subjects as well (PA2; PA4). Parents also expected an improvement in confidence (PA1; PA3) and self-esteem (PA1).

Teachers shared identical expectations. All adults involved in the educational process, either parents or teachers, have shown themselves to not be the least apprehensive about the student’s participation in these sessions, and their level of acceptance was therefore quite high.

None of the two teachers was familiar with AAR. After having learned about it, one of them expected an increased motivation of the children (T1), anticipating some spillover benefit from her student telling her schoolmates about her experience in the dog-assisted reading sessions. The other emphasized instead her expectation that the students might develop more confidence in reading, which would facilitate the teaching-learning process (T2). They were particularly optimistic about wider effects. The former expected the initiative to demystify the fear of animals, coinciding in this with the parents of the two above-mentioned students who reported fearing dogs. The latter believed it might promote respect for animals and schoolmates alike – not the least, for those who had been embarrassed for their poor reading –, leading to an overall change of attitudes in class (T2). On the whole, it may be said that they saw the AAR sessions as a possible benefit in the school context. Teachers also stated that they were confident about the children's adherence to this kind of support, due to the novelty effect (T1), and because “[...] they will not

feel they are being criticized, [as] their reading time will be respected and they will believe the dog is listening [...] This will give them some amount of responsibility [...]”. (T2).

In their view, the students leaving the classroom for about 30 minutes would not disturb the normal functioning of the classroom. They also believed there were other students who might benefit from this type of intervention: “I’m sorry this cannot reach every one of them!” (T2). Teacher T1 said that students with special educational needs could be potential beneficiaries of AAR sessions.

Post-intervention interviews

After the trial and the school year were over, the students’ perception of the dog-assisted reading sessions was very positive. They described the experience as having been “fun” (A4; A5) and “cool” (A1). One spoke of the dog as someone who had brought along books for them to read and improve themselves (A3), as though it had been leading the trial. Two of them, precisely the ones with more reading difficulties and who initially feared dogs (A1; A2), expressed very positive feelings and gratitude for the help they had received: “I read a lot and I really enjoyed Pepper!” The students perceived the help as that of a sympathetic listener (A5) encouraging them to read (A2), promoting their focus (A2). The dog also provided affection: “It helped me by caring...” (A4). The latter child, who said she had misbehaved during the reading sessions, believed that had made the dog sad (A4). By the end of the study, only one of the five children still claimed not to enjoy reading aloud (A3), saying that she needed to improve her reading further in order not to be made fun of by her schoolmates. This child, however, had gone through distressful changes in her family life during the last month of the trial, which may have contributed to her sense of failure.

No child reported having received deprecating remarks from schoolmates for taking part in the trial. To the contrary, one of them told that another student had asked

her why he could not take part in reading sessions with the dog as well (A5). Only three students reported receiving an opinion about their reading performance at home, in spite of their feeling that they had made progress in school. One reported her parents had not heard her read due to lack of time (A5), and another received no feedback from his parents, whom he did read to (A1). Both these students said the dog had helped because it had listened to them.

Besides claiming to have improved in their reading, all students said they would like to keep on reading to the dog, which reinforces the idea that there are positive affective factors that encouraged them to improve on their reading, such as fun and relaxation during the task and the fact of reading to a listener who did not judge. The dog had a “mission to help children to read better”, “Pepper helped me out a lot with my reading, I had laughs, and read a lot of books” (A2). One of them went as far as saying that if she could go on reading to the dog, it might also help her improve in mathematics (A4). Above all, in one way or another, they all said they believed the dog had enjoyed their company and hearing out their stories, which indicates that they had felt personally valued in the experience. After the trial, Portuguese language was no longer the most disliked school subject among the children. Only one of them still said he disliked Portuguese language classes, and that was due to the writing tasks: “We have to keep tiring our hand and writing down to dictation” (A1), while the one who had the second most difficulties in reading actually said he had begun to enjoy Portuguese classes (A2). No student mentioned reading sessions as the ones they either liked or disliked the most among all school activities.

Parents, too, displayed satisfaction with the final results obtained by their children. Even the mothers of those who had started out with the highest reading scores reported having noticed significant differences. All of them remarked on their children spontaneously talking about the

books they were reading, indicating their interest in them. One immigrant mother, who initially wished her daughter to increase her Portuguese vocabulary, said the child had become better able to express herself and to be understood by others, and more autonomous in her homework (PA4). Most parents mentioned benefits in reading fluency and understanding (PA1; PA2; PA5). The mother of the student with the least reading score reported her son had consolidated his reading (PA1), while three other parents reported an improvement of their children's attitudes towards reading, two of them mentioning an increased interest in reading aloud (PA4; PA5) and another that his son had begun to enjoy reading (PA2).

All parents also reported broader behavioral changes along those related to reading, such as the child having become more attentive to others (PA4) or more responsible (PA1), two very reserved and shy children becoming less inhibited to interact with others (PA1; PA2), increases in self-confidence (PA2; PA3), and stop fearing dogs (PA1). All mentioned that their children had discussed the reading sessions enthusiastically at home, with the dog as their main focus. In the words of one mother, "Bagas is a major reference for him! [...] it became a friend" (PA1). One mother mentioned that in the beginning, the dog handler did not even seem to have been there, and only at a later stage did the child begin mentioning her (PA5). At no time throughout the school year did parents hear comments that would cause them any concerns about the activity. Most of the parents felt their children had been more motivated during the school year, and reported behaviors indicating an increase in self-esteem. For example, one of the schoolgirls wanted to comb and dress up for the reading session (PA4), and another (the same one who had reported a colleague asking her about attending the sessions) told at home that she had become popular at school because of her relationship with the dog (PA5).

All parents said they believed this kind of support might be very useful in Portuguese schools, in order to promote the students' respect for animals and their focus in reading tasks (PA5), because of the non-judgmental nature of the dog helping to disinhibit the children (PA1), to boost up children's confidence and make them less fearful of dogs (PA2). One of the interviewees also mentioned other mothers wishing their children might take part in such sessions (PA2).

Both teachers believed that their students in the trial with the dog had increased their oral participation in classes throughout the school year, because they had become more self-confident overall, and eventually with reading aloud in front of the whole class. Teachers confirmed that other students had also asked them about the trial, and that there was "a certain envy" amongst their peers, which contributed to positive self-esteem among the trial group (T2). They also reported the students discussing the sessions with them, although not on their own initiative nor in class. The children engaged in comments about the sessions in an enthusiastic tone during recreation time, and the teachers perceived them as being proud of belonging to this selected group.

Both teachers considered the AAR sessions had been useful for themselves as well, seeing them as an innovative support strategy that had partly alleviated the individualized monitoring and support they have to provide to struggling students. They too believed such sessions would be useful in Portuguese schools, as a way of enhancing self-confidence and motivation among inhibited children who tend to shirk reading tasks (T1), as well as of helping those whose self-esteem is not developing adequately or with unmet affective needs (T2).

Discussion

Contributions

Previous research using Bronfenbrenner's bio-ecological development theory has pointed out the

importance of interactions in children's microsystems and the reinforcement of proximal processes when children are afforded individualized support in school contexts (Jaeger, 2017). This, however, did not consider AAR. The primary goal of my overall research is to extend this view to look into AAR's significance in proximal processes supporting schoolchildren to overcome difficulties as developing readers. The partial findings in this article have contributed to that by mapping out the expectations of the children and their main adult counterparts in the school and the family microsystems about dog-assisted reading as a support strategy, and their after-trial assessment of its effects. The participants' testimonies stemmed from their different points of view: the students as active participants in the AAR sessions and in both their school and family microsystems, their parents as observers of their evolution over time, in the family microsystem, and two of their teachers as observers of their daily performance and formal evaluators of students' reading progress, in the school microsystem.

Reading aloud to others was stressful for most of the students, both in school to their teachers and peers and at home to their parents, and manifested negative self-concept about reading. Their parents and teachers confirmed the children's negative disposition towards reading. Even though they could not quite imagine how reading to a dog might help them overcome their difficulties, they nonetheless anticipated the activity would be pleasurable. Teachers and parents alike held positive expectations about the AAR sessions, mainly concerning the motivation induced by the presence of the non-judgmental listener and a resulting increase in reading confidence. Collaterally, some of the participating adults also mentioned a possible improvement of the children's dispositions and respect towards animals, including overcoming the fear of dogs. Overall, according to the participants'

perceptions, their high expectations of AAR results were amply met.

The interviews have shown that, while all were unacquainted with AAR to begin with, the children's, their parents' and teachers' expectations and their later assessments largely coincided with reported results in the literature concerning AAR positive effects on reading, anxiety and stress. After the trial, all students recalled it as a positive experience. They said they had had fun and had enjoyed the dogs' company, and that they had felt helped by the dogs' listening to them, in line with previous findings in the literature (Dotti, 2015; Friesen, 2012). Teachers and parents corroborated this.

These findings add to the research on AAR primarily by stressing the subjects' own perspectives and perceptions of the processes and by triangulating them across the two core microsystems in young children's development, school and family, rather than assessing objective outcomes within the school microsystem alone. The post-intervention interviews strongly suggest that the regular proximal reading interactions AAR activities involving the dogs, as assessed by the children, were an innovation to the school microsystem that had a positive impact on their reading self-concept. Some of the children's self-concept reportedly improved because of their peers taking interest in their experience with the dogs and envying them for it. All students but one had improved their reading in class.

Moreover, the findings add to the case for explicitly incorporating human-animal interaction in the bioecological model literature, at the micro- and mesosystemic levels. Melson (2001) suggested that the lowering of anxiety levels in humans associated with interaction with animals may be due to their affiliation with perceived positive influences of the animal. Accordingly, the children we interviewed felt happy for attending the sessions with the dog. The dogs had aided them with their reading tasks by listening

without judging. They looked upon the animal as a friend who had helped, encouraged and motivated them to read, as mentioned by Wohlfarth et al. (2014). The dog's presence made the reading sessions fun, in contrast to the teaching strategies that conventional support classes tend to reproduce (Holt, 1964), thus providing a positive environment for reading (Jalongo & Hirsh, 2010) and acting as a learning facilitator (Hall & Goetz, 2013).

According to all kinds of participants, these proximal effects spilled over to other proximal contexts involving the children in the school microsystem, namely classroom reading interactions. The eventual judgment of their efforts by teachers, parents, and peers is widely seen as causing anxiety and stress in underperforming children (Ferrer & Fugate, 2014; Holt, 1964), and such negative emotions fed back into shirking tasks and underperforming in them, namely those of reading aloud to others (Jalongo, 2007; Katzir et al., 2018). In the pre-intervention interviews, almost all the children demonstrated low school self-esteem concerning Portuguese language and reading, and they tended to avoid reading tasks both in school and at home. This is likely to be related to their overall preference for mathematics and science as school subjects, as opposed to Portuguese language. Post-intervention interviews with students and teachers reported improvement in all those respects.

Interactions with teachers and peers were another proximal context in the school microsystem that seems to have been positively impacted. In keeping with Parish-Plass (2008), the children's association with the dogs apparently added to their confidence towards others. Some interviews indicated that the children's school self-esteem was enhanced by their peers' taking interest in their experience with the dog, which made them feel privileged in the school context. Hypothetically, this sort of reward may have counterbalanced possible feelings of

failure and stigmatization associated with conventional support sessions.

According to the children and parents, those effects also spilled over to the children's family microsystem. Before the intervention, reading aloud at home was perceived as negative by both children and their parents, and the proximal processes created around it were felt as stressful to some of the former. This caused them to refuse reading and brought about further parental pressure. In the post-intervention interviews, the children displayed more positive attitudes towards reading at home, and less negative ones towards exposing themselves by reading aloud. Almost all students said they enjoyed reading without fear of exposure, indicating that they had overcome fear of judgment and had improved their self-esteem in this respect. Children who had had negative or no feedback at home, or who reported their parents scarcely listened to them read, were very appreciative of the dogs for having listened to them. Some parents' testimonies explicitly linked this to reading to the dog and the overall positive experience with the animal having become a pleasurable conversation topic at home. They reported on their children's involvement with the AAR sessions spilling over to the home environment, as they recalled their reading to the dog and became more prone for reading at home as well. This mesosystemic effect across the two microsystems, suggested by the bioecological approach, has not to my knowledge been previously addressed in the AAR literature in school contexts.

In what concerns human-animal interaction, we found that children who initially were afraid of dogs and had participated in AAR sessions, subject to special caution as described, not only were able to benefit from them in reading, but the experience reportedly abated their fear of dogs as well. This comes under Kahn's (1997) concept of "biophilia development", from a previously existing attitude regarding the non-human animal as a threat.

Since these children were assigned to different teams, this result cannot be attributed to any specific dog or handler. While the handlers are both women with similar training, they obviously are different persons. The two dogs were different in breed, sex, age and color. Throughout the sessions, Pepper, the young female Golden Retriever consistently displayed more active behavior than the aging and quieter Bagas, the male Labrador. Such differences notwithstanding, the reading sessions obtained similar perceived results concerning the children's relationship with the dogs. This points to the interaction with an adequately trained and handled dog in AAR, irrespective of variation in aspect and behavior, being able to overcome the children's initial fear through the emotional connection they established with the animal (Melson, 2001).

Another relevant point is the participants' acknowledgement of AAR sessions as a support that could be formally introduced into the educational system. Students, parents and teachers were unanimous in assessing the usefulness of the support, mentioning several effects that are compatible with previous research, namely: vocabulary improvement (Zasloff & Hart, 1999), reading improvement (le Roux et al., 2014; Wohlfarth et al., 2014), positive affective involvement with the reading task (Swearingen, 2017), increased motivation (Friesen, 2012), and concentration (Hediger & Turner, 2014). The introduction of AAR in Portuguese elementary schools to promote school success would be highly appreciated by both parents and teachers whose students participated in this study. According to the teachers, this method would be an additional resource to be considered for coping with students who struggle with reading to others. Early intervention addressing these children's difficulties and the promotion of reading in a relaxed environment may, according to them, prevent more students from becoming part of the statistics of school failure.

Limitations

As stated, I am a teacher at the school where the study took place, and some of the participants are my students. Since I was obviously informed and took a professional interest in AAR, there is a risk of bias. Keeping this in mind, only the perceptions, expectations and assessments expressed by the other two teachers were considered, and I took care not to discuss or anticipate my own expectations before or during the interviews, either with the schoolchildren, their parents, or my colleagues. That being said, as in all such studies, the simple fact of presenting the trial and its purposes in order to get consent inevitably contributed to form all the participants' expectations about the sessions, and I cannot entirely rule out the possibility of involuntary contagion of expectations in everyday interactions with participants, especially with my colleagues and students.

The results presented here were drawn out of a single study on a small purposive sample of students. Even for a qualitative study, the number of children, parents and teachers interviewed was admittedly small. This makes generalization impossible. Moreover, for the reason explained, we could not include a number of students who had ranked the lowest in reading scores. This undermined sample diversity in one key aspect. Representativeness, however, was never a goal, and I believe these descriptive findings are compatible with the existing literature, and that they do suggest valuable ideas to be put to the test in wider and more diverse settings.

Conclusion

The aim of this article was to present an analysis of the pre-intervention expectations and the post-intervention opinions of students, parents and teachers involved in an AAR trial to overcome difficulties in reading, located in one elementary school in the Lisbon area. Interviews with the participating schoolchildren, their parents and teachers,

before the and after the trial, show that these children's initial school self-concept and self-esteem were poor, particularly regarding reading and the Portuguese language subject in general, and that they tended to avoid the task of reading aloud to peers and adults. Introducing a "listening dog" in the proximal interaction of reading sessions throughout the school year made up a new element in the school microsystem, which reportedly spilled over into the family microsystem. At the end of the intervention, almost all the students appreciated reading without fear of exposure. The initial expectations of students, parents, and teachers about AAR sessions were very high, and at the end all admitted to their expectations having been met, and recognized benefits besides reading improvement as well.

According to the interviews, this set of students seems to have experienced a

positive change in their attitudes towards reading aloud to colleagues and adults. Some positive factors mentioned in the literature seem to have facilitated this, such as an increase in self-confidence, self-esteem and concentration and a reduction in anxiety and stress. Children and adults alike attributed this to a favorable environment provided by the AAR sessions, where the children felt their reading was listened to and appreciated by the dogs. Perceived collateral benefits were the increase in self-esteem provided by their peers taking interest in, and expressing envy for their experience with the dogs, and subsiding the fear of dogs in those children who had it. In view of the perceived benefits that were mentioned by the participants, they looked very favorably upon the implementation of this kind of AAT programs in Portuguese schools.

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