The Relationships between Achievement Emotions in Language arts lessons and Reading Processes among Fourth and Fifth Grade Students

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A THESIS SUBMITTED FOR THE DEGREE

"DOCTOR OF PHILOSOPHY"

Monograph

Haifa University

Faculty of Education

Department of Learning Disabilities

April 2021

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Thesis submitted to the degree of

Doctor of Philosophy

Haifa University

Faculty of Education

Department of Learning Disabilities

April 2021

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Acknowledgments

My deepest gratitude is dedicated to the supervisors of the doctoral dissertation, Prof. Michal Shany and Prof. Tami Katzir, for their professional guidance and support, for giving me the confidence and allowing me to develop as an independent researcher. Their valuable insights along this journey were of great significance not only to the current study but also to the development of my professional and personal perceptions. It was my privilege to be guided by two strong, professional, yet sensitive and warmhearted researchers.

Special appreciation is given to my research assistants Nava Shitrit and Liron Hazan for their dedicated help in the data collection and coding process, and to my statistical advisor Mrs. Sandra Zuckerman from the Faculty of Education at the University of Haifa for her professional and patient guidance during the data analysis procedure.

I would like to thank the three years Zalman Aran scholarship for outstanding doctoral students in education, awarded to me by the Israeli Ministry of Education. Beyond the valued financial support, the recognition of the importance of this research was not for granted and is no less significant. Also, I appreciate the one-year scholarship given to me by Haifa University.

Finally, I wish to thank from the bottom of my heart and dedicate this work to my loving parents Daliah and Zohar, to my dear husband Netanel, and to my beloved children Yehonatan Israel, Orel Haim, and Tahel for their endless support and patience, for their deep belief in me, and for them continuously allowing me to grow and follow my heart. This journey would not have been complete without them.

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The Relationships between Achievement Emotions in Language arts lessons and Reading Processes among Fourth and Fifth Grade Students

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Abstract

Theoretical Background

Achievement Emotions

According to Pekrun (2006), achievement emotions are related to educational activities (e.g., attending class, studying, and taking exams) or to the outcomes of those activities (i.e., success or failure). His control-value theory states that these emotions are triggered by perceptions of control over one's ability to accomplish a given task, and its' subjective value. These emotions influence various cognitive and motivational aspects, which in turn influence academic achievements. This array of relationships is bidirectional, as the achievements affected by emotions also have an impact on future perceptions of control and value, and consequently on emotions (Pekrun et al., 2002; Pekrun, 2006). This theoretical framework was empirically studied over the past two decades, demonstrating significant associations between achievement emotions and academic achievements in various subjects and educational settings (Lichtenfeld et al., 2012; Pekrun et al., 2011; Pekrun et al., 2017; Putwain et al., 2018), yet have not been thoroughly studied in the specific domain of reading.

Reading Processes

Reading fluency and reading comprehension are two main reading skills that stand at the heart of literacy development. An extensive study was conducted on the various linguistic and cognitive components that underlie reading fluency (Adams, 1994; Berninger et al., 2010; Katzir et al., 2012; Landerl et al., 2019; Wolf & Bowers, 1999), and reading comprehension (Cain et al., 2004; Gough & Tunmer, 1986; Katzir et al., 2006; Kim, 2017; Oakhill et al., 2003; Perfetti, 2007). However, a substantial body of research has also indicated the significant involvement of emotional aspects in these reading processes (e.g., Bohn-Gettler,

2019; Chapman & Tunmer, 2003; Conlon et al., 2006; Katzir et al., 2018; Snow, 2002; Zaccoletti et al., 2020a, 2020b). Achievement emotions related to reading activities and achievements have received less research attention. In particular, the language arts lesson setting is of great significance as reading skills are formally instructed and developed in them.

Research Questions, Results, and Discussion

The current research aims to establish a profound understanding of the involvement and contribution of achievement emotions to reading processes. The study focuses on a wide range of achievement emotions in the language arts lessons setting that are related to reading activities and achievements, most of which have not been studied yet concerning reading processes. These relationships were examined among a large sample of advanced readers in the fourth- and fifth grades (N = 1,050). This age group was chosen as it represents an important stage in reading development when students progress from the phase of learning to read to the phase of reading to learn (Chall, 1983). The study focuses on four main subjects:

1. The characteristics of achievement emotions in the language arts lessons

The basic structures and mechanisms involved in achievement emotions are universal, yet their intensity and frequency are subject to changes based on cultural, domain-subjects, and individual aspects (Pekrun, 2006). The current study expands the knowledge of the characteristics of achievement emotions in the significant setting of language arts lessons. Beyond the fact that reading skills are formally constructed and acquired in language arts lessons, the emotional experience in this specific educational setting is highly important. While students are studying in the classroom, they are emotionally affected also by social aspects of learning. For example, they can hear their classmates reading, and evaluate their reading performance compared to that of theirs. These comparisons and evaluations influence students' self-concept (Marsh, 1986; Marsh & Parker, 1984), which its significant impact on the development of reading skills is well known (Chapman & Tunmer, 1997; Chapman et al., 2000; Kasperski et al., 2016; Katzir et al., 2018). Specifically, the study examines five main

achievement emotions in the classroom setting, which are enjoyment, pride, anxiety, hopelessness, and boredom, including grade level and gender differences related to them (Katzir et al., 2018; Raccanello et al., 2013). The findings indicated that students in the current study experienced high enjoyment and pride in language arts lessons, next to low feelings of boredom, anxiety, and hopelessness. An analysis of variance indicated grade level differences, which were expressed in higher enjoyment and pride, and lower hopelessness among the younger fourth-grade students in comparison with the fifth-grade students. Regarding gender differences, girls reported higher levels of enjoyment, pride, and anxiety, and a low level of boredom in language arts lessons in comparison with boys, despite having similar reading abilities. The findings shed light on the emotions experienced by advanced readers while studying in language arts lessons, providing important educational insights regarding developmental differences not only in reading abilities but also in their related emotions, as well as on gender differences in emotions despite equal reading abilities.

2. The relationship and contribution of achievement emotions in language arts lessons to reading fluency and reading comprehension

Most studies in the specific domain of achievement emotions have focused on anxiety. Recently, a few studies have broadened the range of achievement emotions examined, indicated that state and trait achievement emotions related to engaging in reading activities have a direct influence on reading achievements (Päivinen et al., 2019; Sainio et al., 2019a; Zaccoletti et al., 2020a, 2020b). Adding to this recent research development, the current study explored the relationships between achievement emotions in language arts lessons and reading fluency and reading comprehension. Results from the correlation analysis confirmed that reading fluency and reading comprehension had a significant positive relation to students' level of pride, and significant negative relations to their levels of boredom, hopelessness, and anxiety in language arts lessons. In a structural equation model analysis, beyond grade level and gender, pride and anxiety were found with direct positive effects on reading fluency,

while hopelessness and enjoyment were found with significant negative direct effects. Additionally, boredom had a direct positive effect on reading comprehension, while hopelessness was found with a significant negative direct effect. These diverse relationships with reading processes emphasize the necessity in acknowledging the integral involvement of achievement emotions and to act to use their influence efficiently.

3. The characteristics and relationships between achievement emotions in the language arts lessons and reading processes among students with different reading proficiencies

Studies on achievements emotions indicate differences among students with different cognitive abilities (Goetz et al., 2007; Roos et al., 2015), and mainly on a negative pattern of emotions among students with reading difficulties (Blicher et al., 2017; Chapman et al., 2000; Idan, & Margalit, 2014; Nelson & Harwood, 2011; Päivinen et al., 2019; Sainio et al., 2019a, 2019b). The current study expanded this line of research, examining differences in achievement emotions in language arts lessons, their pattern of inter-relationships, and their associations with reading processes among students with low, average, and high reading proficiency. An analysis of variance indicated significantly higher negative and lower positive achievement emotions among students with low reading proficiency, in comparison with both groups of students with intact reading, which were distinguished only in their level of hopelessness that was the lowest among the high reading proficiency students. A multiple groups invariance analysis showed that students with low reading proficiency had a more negative pattern of interrelationships between emotions, that were expressed in an intense feeling of hopelessness, boredom, and anxiety, that was not moderated by positive emotions. Students with intact reading proficiency exhibited a more positive emotional pattern, so that the more enjoyment and pride they experienced, the less anxious they felt. In addition, among all groups, achievement emotions had direct effects on reading fluency and reading comprehension, yet their pattern was different in each group. These findings offer a profound perspective on the emotional experiences of students with different reading proficiencies,

which holds substantial educational implications in considering not only the variances in students' cognitive abilities but also differences in their emotions.

4. Direct and indirect relationships in the interplay between reading fluency, vocabulary, reading comprehension, and achievement emotions in the language arts lessons

A recent thorough research work conducted by Kim (2017, 2020a, 2020b) yielded an integrative perspective of the array of relationships between the multiple cognitive and linguistics processes involves in reading. The current research adds to this advanced perspective the contribution of achievement emotions. An integrated model was suggested, examining the direct and indirect effects of achievement emotions in language arts lessons in the interplay with reading processes. The models were examined separately in both fourth- and fifth grade, therefore have also offered a developmental perspective on this array of relationships. The proposed integrated model verified the direct and indirect effects of achievement emotions in language arts lessons in the interplay with reading fluency, vocabulary knowledge, and reading comprehension. Achievement emotions had significant direct and indirect effects on reading processes and were significantly affected by them. The main influence of hopelessness stood out throughout all the analyses, since it had significant direct effects on all reading processes, and it was also found as a mediator of the indirect effects of the other achievement emotions on reading processes. The findings on this significant interactive involvement of achievement emotions in the language arts lessons in reading processes, together with the impact of linguistics skills, emphasizes the emotional aspect of reading and thus the need to provide students both educational and emotional support.

General Discussion and Conclusions

The current study has a significant contribution to a growing body of research, by emphasizes the involvement of emotions in reading, next to linguistic and cognitive components. However, the study goes beyond expanding previous findings, and also holds a

significant contribution as it is conducted in the specific context of the Hebrew language in the state of Israel, thus has the potential in providing new and important insights. Moreover, the findings strengthen the notion that the relationships between emotions and reading processes do not depend on a single emotion but grounded in the joint effects of a wide array of emotions. Particularly, the dual role of hopelessness, in both its direct effects on reading processes and its mediating role of the indirect effects of the other emotions, underscores the importance of promoting a feeling of competency among all students, and specifically among students with low reading proficiency. The findings urge to promote effective feedback practices and self-regulation processes to enhance students' reading proficiencies and their emotional well-being as well.

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General Introduction

Academic Emotions

The term *emotion* describes a complex phenomenon. Emotions are multi-componential episodes; aroused by certain stimuli, they are expressed in interrelated, synchronized changes in at least one of their five components: affective, cognitive, physiological, motivational, and expressive. For example, the experience of anxiety before an exam can be expressed in feelings of unease (i.e., affective), worry over failing (i.e., cognitive), increased heart rate (i.e., physiological), avoidance of the situation (i.e., motivation), or an anxious facial expression (i.e., expressive) (Plutchik, 2001; Scherer, 2005). In addition to being multi-componential, emotions cover a range defined by two main dimensions, *valence* (i.e., positive or negative emotions) and *activation* (i.e., activating or deactivating emotions). This classification produces four categories of emotions: *positive activating* (e.g., enjoyment, hope, pride, excitement), *positive deactivating* (e.g., relief, relaxation, calmness), *negative activating* (e.g., anger, anxiety, shame, frustration), and *negative deactivating* (e.g., hopelessness, sadness, boredom, exhaustion) (Pekrun & Linnenbrink-Garcia, 2014).

Students bring a wide range of emotions to educational settings (Fiedler & Beier, 2014). Some of these are considered *incidental emotions and moods*, which involve emotional experiences outside the educational context (i.e., emotions related to students' personal lives, such as significant family events) that can influence learning processes. However, some emotions are directly related to various aspects of the educational environment. These are termed *academic emotions*, and it is important to consider their impact on learning (Pekrun, 2014). Pekrun and Linnenbrik-Garcia (2014) discuss four categories of academic emotions. The first, *achievement emotions*, is related to educational activities (e.g., attending class, studying, and taking exams) or to the outcomes of those activities (i.e. success or failure). The second, *epistemic emotions*, is associated with the main purpose of learning processes, which is the acquisition and construction of knowledge. These emotions are generated by the

cognitive characteristics of the information involved in task performance. The third category, *topic emotions*, refers to emotions elicited by the context of the learning material. These emotions can affect motivation and interest in the relevant academic subject, and thus influence engagement in studying. Finally, there are *social emotions*, which are triggered by social aspects of achievement (e.g., envy, admiration, content, or empathy regarding the success or failure of others) and by social interactions within the educational environment.

The Control-Value Theory of Achievement Emotions

Research in the domain of academic emotions has focused on achievement emotions. One of the leading researchers in the field of achievement emotions is Reinhard Pekrun, who explored extensively in the past two decades the structures, functions, and antecedents of achievement emotions. Pekrun and his colleagues (Pekrun, et al., 2002) address achievement emotions using a three-dimensional taxonomy, grouping them primarily based on their object focus (i.e., activity or outcome) and further on by their degree of valence and activation. The Control-Value Theory of Achievement Emotions (Pekrun, 2006) represents an integrated theoretical framework for understanding the ancestries of achievement emotions, their functions and regulation, and their influence on academic achievements.

Perceptions of control and value are cognitive appraisals related to achievement emotions. *Perceived control* refers to the individual's evaluation of academic self-ability and self-efficacy in accomplishing a given task, and *perceived value* refers to the subjective importance of that task. High perceived control and positive perceived value will promote positive emotions (e.g., enjoyment in learning; pride in succeeding on an exam) and may reduce negative emotions (e.g., anger or boredom). On the other hand, low perceived control accompanied by negative perceived value can evoke negative emotions (e.g., feeling incapable of success on an important exam can produce anxiety, frustration, and hopelessness due to anticipation of failure). Ultimately, control and value perceptions trigger positive or negative achievement emotions, which in turn influence academic achievements through their

effects on several cognitive capacities, including working memory, motivation, information processing, and self-regulation of learning (Pekrun et al., 2002; Pekrun, 2006).

The effects of achievement emotions on academic achievements are cyclic and bi-directional. Pekrun (2006) refers to this in his theory as a "feedback loop," in which initial perceptions of control and value trigger emotions that affect performance, which in turn affects future perceptions of control and value and emotions (Pekrun et al., 2014; Pekrun et al., 2017; Pinxtenet al., 2014; Putwain et al., 2013; Putwain et al., 2018). For instance, in a longitudinal study among sixth and seventh-grade students, Hagenauer and Hascher (2014) found reciprocal associations between achievements, control and value perceptions, and enjoyment in learning. Specifically, high achievements were related to high perceptions of control and value, which in turn positively affected enjoyment in learning. Numerous studies on achievement emotions in educational settings have supported and validated this theoretical model, and their findings indicate that a wide range of achievement emotions substantially influence academic achievements (Mega et al., 2014; Pekrun et al., 2011; Ranellucci et al., 2015).

Positive achievement emotions are usually associated with the productivity and efficiency of the cognitive mechanisms that influence achievements (i.e., working memory, information processing, strategy use, motivation, and self-regulation of learning), while negative achievement emotions are considered maladaptive (Pekrun, 2006). For example, concerning learning strategies, Ranellucci et al. (2015) found negative relationships between negative achievement emotions and the reported use of learning strategies in adult students. Namely, boredom predicted poor time management, and anxiety predicted low self-monitoring. Enjoyment however turned out to be beneficial to most learning strategies. Furthermore, in a study on adult students, Mega et al. (2014) found that positive achievement emotions and motivation were positively correlated with self-regulated learning, which

mediated the influence of achievement emotions on academic achievement at the end of the academic year.

Information processing is an additional cognitive function known to mediate associations between positive and negative achievement emotions and academic achievements (Pekrun, 2006). Negative achievement emotions are associated with bottom-up processing, which is involved in local, selective, detailed, and accurate recall of information. In contrast, positive achievement emotions are believed to promote top-down processing strategies, which encourage global, creative thinking and are central to higher-level functions such as inferencing and problem-solving (Bohn-Gettler & Rapp, 2011; Bohn-Gettler & Rapp, 2014; Levine & Edelstein, 2009).

However, the influences of positive and negative achievement emotions are not necessarily consistent and can be affected, among other things, by the degree of activation (Pekrun, 2006). For example, negative activating emotions (e.g., anxiety and shame) may weaken intrinsic motivation in the performance of a certain activity, while strengthening extrinsic motivation to avoid failure (Fiedler & Beier, 2014; Pekrun & Perry, 2014). In this context, Tulis and Fulmer (2013) found a positive relationship between both positive and negative activating achievement emotions and persistence in performing academic tasks. In their study on sixth- and seventh-graders, continuous engagement and persistence during difficult tasks in mathematics and reading were related to both enjoyment and anxiety. And yet, positive achievement emotions are not always beneficial and can cause distraction or maladaptive strategy choices that can eventually be reflected in the quality of performance (Fiedler & Beier, 2014). In fact, according to Izard (2013), it is not necessarily the distinction between positive or negative emotions, but the distinction between adaptive-constructive responses, as opposed to destructive behaviors. The various effects of a wide range of positive and negative achievement emotions, both of which are naturally experienced in learning processes, will be examined in the current study.

Emotions in Reading

Preparing the next generation to succeed in learning and to acquire an academic and vocational education to become successful adults in the twenty-first century, is highly dependent on literacy skills (Murnane et al., 2012). Reading comprehension is a core academic skill that enables learning and acquisition of new knowledge (Cornoldi & Oakhill, 2013), and therefore is a key to learning in school. Most information, even in the digital age, is acquired through reading (Wolf, 2018).

At the first stage of reading development, young students learn how to read as they acquire basic decoding skills (Chall, 1983). In one of the only reports on emotions and reading development, McGeown et al. (2015) examined emotions and attitudes towards learning how to read among first-grade students. Novice readers indicated positive relations between their reading accuracy and the enjoyment, attitude, and confidence they experienced in the process of reading acquisition. After students acquire accuracy in decoding words, reading fluency, an automatic process of rapid and accurate reading (National Reading Panel, 2000), becomes the strongest predictor of reading comprehension in older students (Kim et al., 2010; Kim, 2020b; Klauda & Guthrie, 2008; Pikulski & Chard, 2005; Pinnell, 1995). Yet less is known about emotions related to reading development, in older elementary school students. This age group is of great importance, as by the fourth grade, the complexity and amount of reading increase, and students are expected to progress to the stage of reading to learn and to gain new knowledge in various subjects (Chall, 1983).

Studies on readers' emotions indicate that reading skills involve not only cognitive abilities and linguistic skills but emotional aspects as well. Academic self-appraisals of reading efficacy (Solheim, 2011) and reading self-concept (Chapman & Tunmer, 1995; Kasperski et al., 2016; Katzir et al., 2009), as well as motivation (De Naeghel et al., 2012; Hebbecker et al., 2019; Schiefele et al., 2012; Vaknin-Nusbaum et al., 2018), engagement (Kim et al., 2017; Wigfield et al., 2008), and various emotional constructs including mood

(Bohn-Gettler & Rapp, 2011; Scrimin & Mason, 2015), trait emotions (Grills-Taquechel et al., 2013; Tysinger et al., 2010), and physiological arousal (Daley et al., 2014; Mason et al., 2020), were found related to reading performances. All the affective aspects mentioned above are of great importance and covering them all is beyond the scope of the research. As this study focuses on the specific context of "emotions", to avoid confusion between the diverse affective aspects and the complex terminologies in the field of affective aspects in learning, mostly the literature in the specific context of emotions will thoroughly review.

Since fundamentally reading is an academic skill, it is important to examine its association with academic emotions, which are directly related to the academic environment. In this context, epistemic emotions associated with the construction of knowledge during reading were found significantly related to comprehension abilities (Muis et al., 2015; Trevors et al., 2017b). Succeeding in acquiring proper reading skills, especially reading fluency and RC, is considered a key academic achievement. The research has not fully covered the influence of the wide range of achievement emotions related to the act of reading and its outcomes, which are fluent reading and reading comprehension. The literature in the domain of achievement emotions and reading achievements among typical readers focused mainly on anxiety (Katzir et al., 2018; Ramirez et al., 2019). Studies that examined the involvement of other achievement emotions in reading, both positive and negative, examined online achievement emotions experienced during performing a reading task (Päivinen et al., 2019), and emotions usually experienced while engaging in reading tasks (Sainio et al., 2019a; Zaccoletti et al., 2020a, 2020b). Achievement emotions in the classroom setting, a central educational setting in school, have not been studied yet concerning their relationship with reading skills. In particular, achievement emotions in the specific setting of language arts lessons are of great value, since reading skills are formally developed and instructed in them. Because reading is known as a basic academic skill, which is at the heart of learning processes in almost every domain or academic subject, there is an awareness that acquiring proper

reading skills is crucial. As a result, language arts lessons, which are the official source of this meaningful learning, are unique. In this regard, the current study will focus on the association between achievement emotions in the classroom and reading achievements of typical readers in their native language, as well as students with reading difficulties. This is important as students with learning difficulties are known to experience higher negative and lower positive emotions due to their reading deficits (Idan & Margalit, 2014; Mana et al., 2020; Nelson & Harwood, 2011; Zeleke, 2004).

Additionally, most studies in the domain of achievement emotions used a variable-centered approach, by which associations with academic achievements are evaluated for each emotion independently (Pekrun et al., 2009; Villavicencio & Bernardo, 2013), or for emotions grouped by their valance, arousal or both (Hirvonen et al., 2019; Mega et al., 2014; Päivinen et al., 2019; Pekrun et al., 2017; Zaccoletti et al., 2020a). In this approach, the effects of each discrete emotion on achievements are examined under controlling the influence of other emotions. However, the human emotional experience by nature is not restricted to just one single emotion at a time, but to the experience of several emotions simultaneously (Plutchik, 2001). According to the Deferential Emotion Theory, emotions operate as a system in which emotions interact with each other, when one emotion may activate, increase, or reduce another (Izard, 1977, 2013; Izard et al., 2000). A substantial body of research work indicates that emotions are not experienced separately, but simultaneously (Larsen & McGraw, 2011), even from primary school age (Zajdel et al., 2013). Recent studies on achievement emotions and their relationships with learning and achievements suggested the use of a person-centered approach, which account for the joint effect of the multiple emotions on achievements (Ganotice et al., 2016; Jarrell et al., 2016; Robinson et al., 2017; Sinclair et al., 2018; Wortha et al., 2019). Furthermore, there is evidence that one emotion can have diverse subtypes (Tracy & Robins, 2007), which interact differently with other emotions (Goetz et al., 2014). In keeping with this view, the current study examines not only the relationship between

achievement emotions and reading achievements but also how it is influenced by the inter-relations between emotions.

To conclude, the current study is aimed to examine broadly achievement emotions in the domain of reading and to extend the literature of both achievement emotions and emotions in reading. Adopting a holistic ecological methodological approach, the current study examines not only the relationships between emotions and achievements but also the inter-relations between emotions and their interplay in reading processes. Aside from the theoretical contribution, it is directed at achieving meaningful educational insights and providing educators and education policymakers with practical information on addressing emotion in education. The study will focus on the following research questions:

1. What are the characteristics of achievement emotions in the language arts lessons? Are there grade level and gender differences, and if there are, what are they?
2. What is the relationship between achievement emotions in the language arts lessons and reading fluency and reading comprehension?
3. What are the characteristics of achievement emotions in the language arts lessons among students with and without reading difficulties? Are there differences in their relationships with reading fluency and reading comprehension, and if there are, what are they?
4. What is the interplay between reading fluency, vocabulary, reading comprehension, and achievement emotions in the language arts lessons?

General Methodology

Participants

The sample consisted of students who participated in the study of a multi-componential approach to reading comprehension: Training teachers for mapping to intervention (Katzir et al., 2019) in the years 2017-2019. The study included an intervention program in literacy for fourth and fifth-grade students. Students' assessments were conducted twice a year, at the beginning (October-November), and the end (May-June) of the school year. The first research year was defined as an extended pilot for the intervention program and research tools among 1,056 students. The present analysis focuses on the second year in which the study was operated and refers only to data collected at the beginning of the school year, before the intervention.

The sample consisted of 1,050 students (50.8% female) at fourth (63.1%) and fifth (36.9%) grades in the age range of 9-11 years old, from 21 regular elementary schools in northern Israel (that is, not special education schools). Gender distribution of the sample by grade level was examined in a chi-square test indicating no significant difference ($p \geq .05$). Students' socioeconomic background was between low to medium-high ($M = 6.32$ $SD = 1.83$), based on the Israeli Ministry of Education's school SES index, which classifies schools based on parents' education, family income, school location and immigration, and neighborhood. The majority (83.9%) of the participants were native Hebrew speakers, 14.5% were bilingual whose native language was Russian, and 1.6% were bilinguals with other mother languages.

Measures

Vocabulary. A subtest from the "Elul" test (Shatil et al., 2007), that was adapted and modified by Shany et al. (2017) was used (See Appendix 1), which is appropriate in using at different grade levels. The task includes 35 words organized by their frequency (high to low) in the Hebrew language. For each target word, the participants were required to choose one picture that best suits it out of four optional pictures. The test has no time limit. Accuracy

percent was calculated by the number of correct items. Cronbach's alpha reliability at the present study was $\alpha = .76$.

Reading fluency. A Hebrew version of TOWRE (Test of word reading efficiency; Torgesen et al., 1999), which was adapted by Katzir et al. (2012) was used (See Appendix 2). The task evaluates the speeded oral reading of 104 isolated words at a time limit of 45 seconds. A fluency measure was calculated by computing accuracy (the number of words that were read correctly) divided by reading time (45 seconds limit). Cronbach's alpha was $\alpha = .95$. It should be noted that since word reading fluency and text reading fluency are known to be highly correlated, including one fluency measure is considered acceptable (See for example Kim, 2015).

Reading Comprehension. There is currently no standardized test of reading comprehension with recent norms in the Hebrew language. Therefore, reading comprehension in the current study was examined using a composite score of two reading comprehension tests:

1. "Literal and Homiletic Meaning" Test (Shany & Blicher, 2017) consisted of two comprehension texts, one narrative text (420 words) and one informational text (403 words). Each text was followed by 8-10 multiple-choice questions, assessing linguistics knowledge within the text, comprehension of explicit information, and drawing inferences (see Appendix 3). Cronbach's alpha reliability of the test was $\alpha = .793$.

2. "Tamar" test (Sabag-Shushan & Katzir, 2018) consisted of four short texts (average of 145 words length), two narratives, and two informative. Each text was followed by five multiple-choice questions, assessing the ability to locate explicit information, the ability to formulate inferences of different types (purpose, thoughts, and emotions), and to identify a main idea in the text (see Appendix 4). Cronbach's alpha reliability of the test was $\alpha = .803$.

The two RC tests were significantly correlated ($r = .70$ $p \leq .01$). At each test, participants were asked to read the texts silently and to answer the followed questions. Each

correct answer was given 1 point. A total reading comprehension score was calculated as the sum of correct answers (0-38) from all the texts of the two reading comprehension tests together and was later converted to the percentage of correct answers. Cronbach's alpha reliability of the combined tests was $\alpha = .89$.

Achievement emotions. To assess achievement emotions in language arts lessons, the class scale from the Achievement Emotions Questionnaire for Pre-Adolescents (AEQ-PA; Peixoto et al., 2015) was adapted (see Appendix 5). The original scale contains 24 items (4 items per discrete emotion) evaluating six class-related emotions (i.e., enjoyment, pride, boredom, anger, anxiety, and hopelessness). Due to strict time limitations in the data collection process, a shorter version of the questionnaire was adapted, under an inter-rater agreement with my supervisors. At first, since the broad research plan included pre-and post-tests, only emotions that were expected to change after the intervention program were included. Thus, anger was excluded, as it can be triggered by various elements that are not necessarily related to the curriculum (e.g., the behavior of classmates during the lesson). Further on, it was decided to reduce the number of items of the anxiety and boredom scales to two items each, based on conceptual overlaps between several items. The shorter version of the questionnaire obtained was translated into Hebrew and adapted to the specific domain of language arts lessons. Several meetings with elementary school students were held to ensure that the items were well understood, and changes were made accordingly. In these meetings, students read each item and explained how they understood it. If the intent of a particular item was not understood, another wording was proposed, which matched both students' understanding and the original nature of the item. During the assessment process students were asked to rate each item on a scale from 1 (*strongly disagree*) to 5 (*strongly agree*). To ensure that the responses to the questionnaire were not influenced by an immanent difficulty in reading, items were read aloud by a test administrator for students with reading difficulties reported by the teacher or by the participants themselves. The internal construct of the

questionnaire was examined by performing a Confirmatory factor analysis (CFA). Conducting CFA is important to obtain the best indicators of the latent variables before testing them in a structural model (Brown & Moore, 2012; Jackson et al., 2009). Afterward, a mean score for each discrete emotion was calculated.

Confirmatory Factor Analysis of the AEQ-PA

Missing Data. Since the emotions measure was obtained by independent self-reports from a large sample of young students, missing data were expected. Missing data did not exceed 10%; Analysis of missing data showed that only 5% of the participants had missing data, and only 0.4% of the values were missing. In line with the literature in the field of missing data methodology, an advanced method of Multiple Imputation (MI) was used (Peugh, & Enders, 2004; Rubin, 2004; Schafer, & Graham, 2002). The Multiple Imputation procedure of IBM SPSS Statistics for Windows, Version 24.0 was operated (IBM Corp., 2016). This procedure produces one or more datasets in which missing values are replaced with plausible estimates. For the current analysis, the default method, which scans the missing data to determine whether to use imputation method for monotone or non-monotone missing patterns, was used. At the imputation process, a univariate model of linear regression is used for scale variables, as those in the present analysis. Since there was only a small portion of missing data, five imputations were performed. One-way ANOVA between the original data with missing values and the five imputed data yielded non-significant differences. Hence, it can be concluded that the imputed data did not cause significant bias or differences. A final pooled dataset with complete data was generated using Frequencies procedure and was used for the analyses at the current study.

CFA Analyses. The CFA Analyses were conducted with Amos Version 25.0 (Arbuckle, 2017). Based on previous studies in the domain of achievement emotions' structures (Lichtenfeld et al., 2012; Peixoto et al., 2015; Pekrun et al., 2011), Four CFAs models were tested. Model 1 was based on the multidimensionality of achievement emotions,

included five latent variables representing distinct achievement emotions with 16 observed variables; Enjoyment, pride, and hopelessness with four items each, and anxiety and boredom with two items each. Model 2 assumed that the emotions are distinct only by their valence; it included two latent variables, positive and negative emotions, each comprised of items of the related emotions. Model 3 examined the aspect of activation level; it included two latent variables, activating (i.e., enjoyment, pride, and anxiety) and deactivating emotions (i.e., hopelessness and boredom), each comprised of items of the related emotions. Model 4 examined the valence x activation assumption. Accordingly, three latent variables were created, positive activating (i.e., enjoyment and pride), negative activating (i.e., anxiety), and negative deactivating emotions (i.e., hopelessness and boredom), each comprised of items of the related emotions. At all four models, items could load only on their target factor, and correlations were allowed between latent variables.

Follow the recommendation of Jackson et al. (2009), models fit were determined through the comparative fit index (CFI), Tucker- Lewis index (TLI), root mean square error of approximation (RMSEA), and its associated confidence intervals (CI), and standardized root-mean-square residual (SRMR). Excellent model fits are characterized by CFI and TLI values close to or greater than 0.95, RMSEA values lower than 0.06, and SRMR equal to or below 0.08 (Hu & Bentler, 1999). CFI and TLI values greater than .90 and SRMR equal to or less than .10 are considered acceptable (Kline, 2005). Chi-square statistic is reported but was not used to assess model fit as it is overly sensitive to sample size (Marsh et al., 1988; Schreiber, 2008). In addition to model fit indexes, factor loadings (i.e., standardized regression coefficients) for each factor were examined as well to confirm internal validity and items reliabilities. Factor loadings above .71 are considered excellent, .63 very good, .55 decent, .45 reasonable, and .32 poor (Tabachnick et al., 2007).

Results from the four CFAs are presented in Table 1. Model 1 was found with an excellent fit to the data while the other three Models had a poor fit. Standardized regression

coefficients of factor loadings for each latent variable as well as latent factor correlations for model 1 presented in Figure 1. Average factor loadings for each latent variable were in the range between high to very good; "Boredom" .86; "enjoyment" .84; "pride" .74; "hopelessness" .64, and "anxiety" .62. The correlations between the latent variables show that positive emotions of enjoyment and pride, are positively correlated, as well as the negative emotions of anxiety, hopelessness, and boredom. Negative correlations were found between positive and negative emotions. Overall, the results from the CFAs are compatible with those found in previous studies (Lichtenfeld et al., 2012; Pekrun et al., 2011; Peixoto et al., 2015), supporting the multidimensionality of achievement emotions, and their inter-relations.

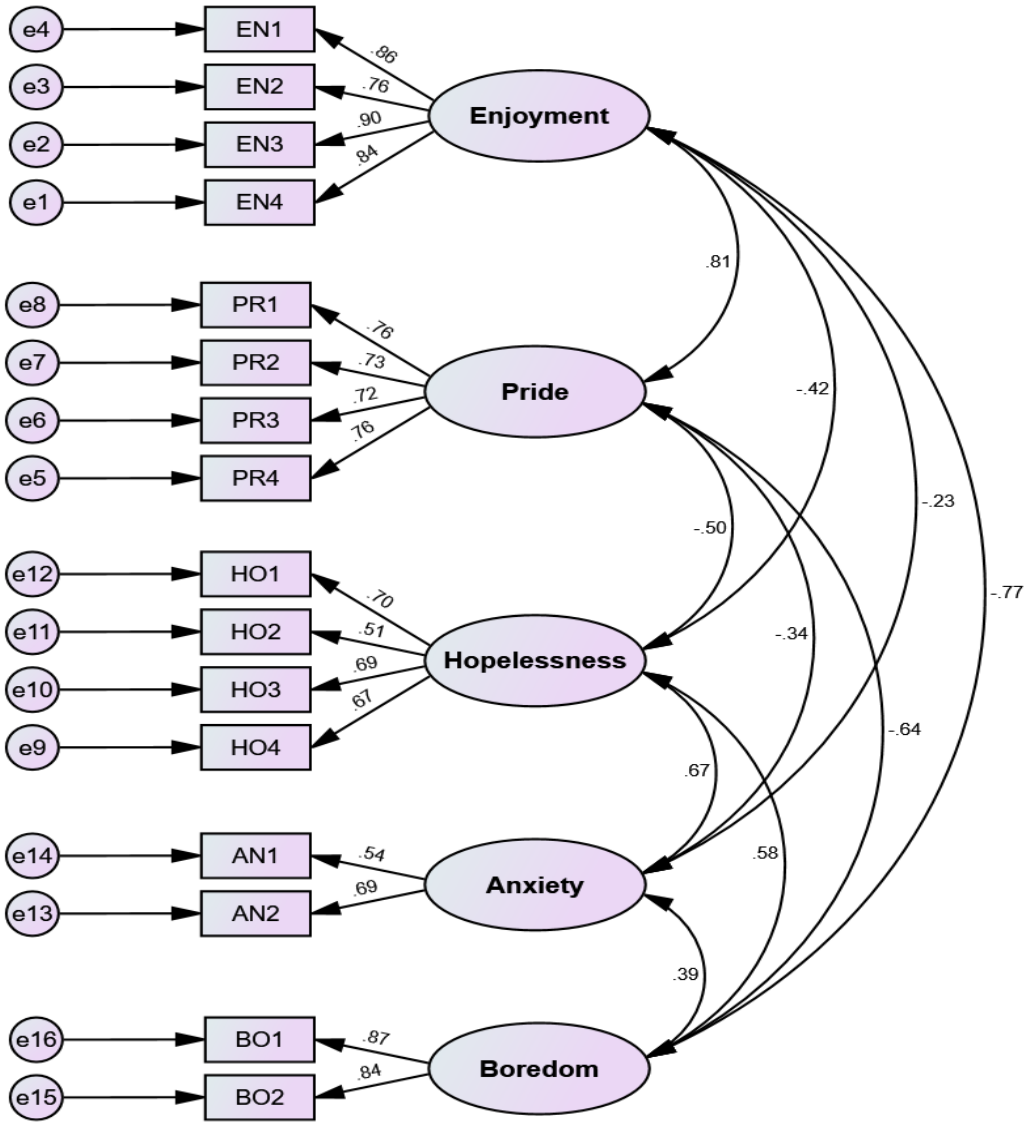
Table 1

*Model Fit Statistics for Confirmatory Factor Analyses Assessing the AEQ-PA (*N = *1,050)*

Model	χ^2	*df*	*p*	CFI	TLI	RMSEA	[90% CI]	SRMR
Model 1 Multidimensional	293.002	94	.000	.98	.97	.045	[.039, .051]	.0372
Model 2 Valence	1346.793	103	.000	.85	.82	.107	[.102, .112]	.0802
Model 3 Activation	1458.898	103	.000	.83	.81	.112	[.107, .117]	.0910
Model 4 Valence x Activation	1222.083	101	.000	.86	.84	.103	[.098, .108]	.0754

Figure1

*CFA for Five-Factor Model of Achievement Emotions in Language Arts Lessons (*N *= 1,050)*



Note. EN, enjoyment; PR, pride; AN, anxiety; BO, boredom; HO, hopelessness. Standardized regression coefficients of factor loadings for each latent variable are presented on the left, and latent factor correlations are represented on the right.

Procedure

The Study's approval was given by the Chief Scientist of the Ministry of Education in Israel, and the Research Ethics Committee of the Department of Education at the University of Haifa, followed by parents' written consent. Students' assessment was conducted by a team of external test administrators, all trained graduate and undergraduate students. The assessment process consisted of three separate classroom sessions, which lasted approximately 60-90 minutes each, during which the students independently completed booklets with the research measures. Students in both grade levels completed the same tests. To avoid their performance from being influenced by reading difficulties, students with reading difficulties were provided with help when needed in completing the emotional questionnaire, and the vocabulary test. The emotional questionnaire was completed at the beginning of the assessment sessions, to avoid it being emotionally affected by the reading tasks. Students' oral reading fluency was examined in an individual session that lasted approximately 3 minutes.

Strategy of Data Analysis

Data were managed and analyzed using IBM SPSS Statistics for Windows, Version 24.0 (IBM Corp., 2016). In chapter one, addressing the characteristics of achievement emotions in language arts lessons, the preliminary analysis included descriptive statistics and psychometric statistics for the whole sample. To address differences between the emotions, a Paired sample t-test examined the difference between the positive emotions of pride and enjoyment; a repeated-measures analysis with pairwise comparisons using Bonferroni examined differences between the negative emotions of hopelessness, boredom, and anxiety. To examine gender and grade level differences, at first descriptive statistics of the study's variables were extracted for each gender and grade level, followed by independent sample t-tests. In chapter two, examining the relationships and the direct effects of achievement emotions in language arts lessons on reading fluency and RC, at first, Pearson correlations

were calculated between all the study's measures. Following, a Structural Equation Modeling (SEM) analysis was conducted, to examine the direct effects of achievement emotions on reading fluency and RC. In chapter three, which addressed differences in achievement emotions in language arts lessons and their effects on reading fluency and RC among students with different reading abilities, the sample was divided into three groups based on students' reading fluency ability. A Multivariate analysis of variance using Bonferonni post hoc pairwise comparisons examined differences in the study's measures in each group. Following, SEM analyses of the direct effects of achievement emotions on reading fluency and RC were conducted for each group. A multiple group invariance testing procedure (Byrne, 2004) examined group differences in the SEM model. In chapter four, a series of SEM models were conducted to examine a proposed integrated model examining the interplay between linguistic measures and achievement emotions.

All SEM models in the current study were conducted with Amos Version 25.0 (Arbuckle, 2017). As in the CFA analysis of the AEQ-PA, model fit statistics for the SEM models were examined through CFI, TLI, RMSEA, and SRMR values. Excellent and acceptable model fits are with CFI and TLI values $\geq$ 0.95, 0.90, RMSEA values $\leq$ 0.06, and SRMR $\leq$ 0.08, .10, respectively (Hu & Bentler, 1999; Kline, 2005). Chi-square statistic was reported but was not used to assess model fit as it is overly sensitive to sample size (Marsh et al., 1988; Schreiber, 2008), however, it was used for model comparisons (Byrne, 2004). The analyses were conducted based on 5,000 bootstrapped samples with bias-corrected and accelerated 95% confidence intervals (CIs) (Preacher & Hayes, 2008).

Chapter 1. Achievement Emotions in Language Arts Lessons

1.1. Theoretical Knowledge

The basic structure of achievement emotions is universal, yet their intensity and frequency can be subject to change based on cultural facets, domain-subjects, and individual aspects including age and gender (Pekrun, 2006; Raccanello et al., 2019; Sainio et al., 2019b; Zaccoletti et al., 2020b). In a recent study, Loderer et al. (2020) examined the cross-cultural similarity of perceptions of affective, cognitive, motivational, physiological, and expressive components of a wide range of achievement emotions across Canadian, German, Colombian, and Chinese samples of university students. Their findings indicated consensus regarding affective, cognitive, and motivational components, and of a higher resemblance among the Canadian, German, and Colombian samples. However, less similarity was found in physiological and expressive components, and in the comparison to the Chinese sample. Overall, their study implies that some aspects of achievement emotions are more similar than others and that invariance may depend on language and cultural features. The authors suggested that a plausible reason for cultural and language-related invariances in achievement emotions might be due to their different effects on control and value appraisals. Achievement emotions are also known as domain-specific, as supported by studies on achievement emotions in various domains, such as mathematics, languages, science, sports, music, etc. (Gaspard et al., 2017; Goetz et al., 2008; Goetz et al., 2013; Goetz et al., 2006; Lauermann et al., 2017; Raccanello et al., 2019). For example, Raccanello et al. (2013) examined achievement emotions associated with salient academic domains of verbal language (literacy) and math among students in fourth, seven, and eleventh grades. Students in all grade levels reported higher levels of positive emotions of enjoyment and pride associated with math compared to those associated with literacy class. In comparison to math, literacy classes were characterized by higher levels of negative emotions such as boredom and hopelessness.

Regarding age differences, Raccanello et al. (2013) also found greater positive achievement emotions among younger students, next to intense negative achievement emotions among older students, in both math and literacy domains. The same pattern was also found in a subsequent study (Raccanello et al., 2019) among elementary school students in the second and fourth grades. Higher enjoyment and lower boredom and anxiety were reported among second-grade students in comparison with fourth-grade students. In addition to the effects of age, achievement emotions can also be influenced by gender differences. For example, in the domain of math, Frenzel et al. (2007) found lower enjoyment and pride, and a higher sense of hopelessness, anxiety, and shame among girls compared with boys, despite having similar achievements. Similarly, in the domain of reading, Katzir et al. (2018) found gender differences in reading anxiety and reading self-concept among young second-grade students. Girls reported higher reading anxiety and lower reading self-concept compared to boys, and that is despite girls having higher reading accuracy and equal reading rate. Raccanello et al. (2019) found a higher level of boredom among boys in the domain of native language learning. Ultimately, the study on academic emotions indicates that it involves both universal and individual aspects that should be considered.

The current study focuses on achievement emotions in the general context of reading. Though reading is required in learning almost every subject, reading skills are explicitly developed and learned in language arts lessons. The language arts curriculum in the first years of elementary school in Israel focuses on developing basic decoding skills, to achieve fluent reading (see chapter 2. p.30 for an elaboration regarding the uniqueness of the Hebrew script under the section that addresses reading fluency). Students in this stage engage in reading texts from textbooks and illustrated information books. They are instructed at understanding explicit information units and main topics, comprehending chronological sequences, as well as identifying causal connections implied in the text, and understanding the text's purpose. At the upper classes of elementary school, literacy demands are increased, and students are

expected to apply critical reading, and comprehensive and effective use of a larger variety of texts, including digital information sources, as well as children's encyclopedias and magazines. They are also expected to control diverse complex reading activities, such as identifying prominent structural and linguistics elements in the text and understanding their role, as well as understanding logical connections within the text, drawing inferences, creating generalization, and integrating information from other sources (Ministry of Education, 2003). The curriculum also includes a specific program for improving reading fluency at elementary schools (i.e., Kol Kore; Kolan & Levi Shimon, 2019). The program presents a model of assessment, instruction, and intervention in the domain of reading fluency, which incorporates continuous practices for reading training as an integral part of language arts lessons throughout all elementary school years.

Despite the significance of reading in learning processes, studies of academic emotions in language arts lessons, indicate a decrease in positive achievement emotions along with an increase in negative achievement emotions throughout the school years (Nootens et al., 2019; Raccanello et al., 2013; Raccanello et al., 2019; Sainio et al., 2019b). Raccanello et al. (2019) suggested that these changes in the emotions' trajectory can have various causes; for example, there might be a difference in teachers' ability to convince students of the rationale behind acquiring literacy skills and motivate and generate their curiosity and excitement in learning them, in opposed to their ability in doing so more successfully at the math domain. Another reason could be a decrease in students' perception of the utility value of succeeding in the literacy domain. This disturbing finding emphasizes the importance of examining more thoroughly the association between reading processes and achievement emotions, especially in the language arts lessons setting. Research on achievement emotions in the specific domain of reading processes is not well established and focuses almost exclusively on the negative effects of anxiety. The current research aims to expand the knowledge of achievement emotions related to reading processes. Particularly, the study

focuses on a wide range of positive and negative achievement emotions in the language arts lessons setting in the specific Hebrew language. Differences regarding grade level and gender will be addressed.

1.2. Research Questions and Hypotheses

What are the characteristics of achievement emotions in the language arts lessons among students in the fourth and fifth grades? Are there grade level and gender differences? It was hypothesized that there will be grade-level differences in achievement emotions and that it will be consistent with previous studies (Raccanello et al., 2013), accordingly, higher positive emotions and lower negative emotions will be reported by the younger students. Grade level differences in reading skills are expected as well. Regarding gender, it was hypothesized that there will not be differences in reading skills, but differences in emotions are expected; Based on previous studies (McKenna et al., 1995; McGeown et al., 2015; Nootens et al., 2019; Raccanello et al., 2019; Zaccoletti et al., 2020b) it was hypothesized that in comparison with boys, higher positive emotions and lower negative emotions will be found among girls, expect for anxiety, which is assumed to be lower (Katzir et al., 2018). It should be noted that a thorough examination of the full theoretical framework of the control-value theory of achievement emotions (Pekrun, 2006) is beyond the scope of the current study. The antecedes of achievement emotions are not included, so it will only be possible to discuss hypotheses as to the reasons for the differences if any.

1.3. Results

1.3.1. Preliminary Analysis

The preliminary analysis included descriptive statistics and psychometric statistics. The results are presented in Table 2. Values of skewness and kurtosis were within the acceptable range (±3) (Cain et al., 2017). Internal reliabilities were calculated by Cronbach's alpha coefficient. The reliabilities of the achievement emotions' scales ranged from .73 to .90, except for the anxiety scale ($\alpha = .54$). The variables in the study are examined in the context

of an integrated theoretical based model; thus, interpretation of alpha coefficients is not enough, and model fit values (presented in p.14-15) are important as well since both provide distinct information about the psychometric properties of scores (Schmitt, 1996; Stanley & Edwards, 2016). As anxiety is a broad and complex construct, the lower reliability value obtained is assumed to be the result of the short scale that was used, which in the future will need to be expanded with additional items.

Table 2

*Descriptive Statistics of Study's Measures (*N *= 1,050)*

	No. items	Min-Max	*M*	*SD*	α	Skewness		Kurtosis	
						Statistics	*SE*	Statistics	*SE*
Reading Comprehension	38	10.53-97.37	57.39	21.39	.89	-.12	.08	-1.08	.15
Reading fluency	104	10.67-102.7	56.03	16.18	.95	-.09	.08	-.35	.15
Vocabulary	35	2.86-97.14	67.67	13.61	.76	-.45	.08	.45	.15
Hopelessness	4	1-5	1.63	.85	.73	1.45	.08	1.48	.15
Anxiety	2	1-5	2.26	1.16	.54	.71	.08	-.42	.15
Boredom	2	1-5	1.94	1.19	.84	1.14	.08	.26	.15
Enjoyment	4	1-5	3.88	1.07	.90	-.96	.08	.15	.15
Pride	4	1-5	4.2	.88	.83	-1.28	.08	1.25	.15

Note. Reading Comprehension – accuracy percent; Reading Fluency – the number of correct words per minute; Vocabulary – accuracy percent; Hopelessness, Anxiety, Boredom, Enjoyment, and Pride – mean score on a scale between 1-5.

1.3.2. Characteristics of Achievement Emotions in Language Arts Lessons

The descriptive statistics indicate that overall, based on the mid-range score of each emotion on the 5-points Likert scale, students in the current study had high levels of enjoyment and pride, and low levels of hopelessness, boredom, and anxiety. A paired sample t-test yielded a significant difference between pride and enjoyment $t_{(1049)} = 13.724$ $p \leq .001$,

indicating that their experience of pride is higher than that of enjoyment. A repeated-measures analysis of the negative emotions indicated significant differences $F_{(2, 2098)} = 138.426$ $p \leq .001$. Pairwise comparisons using Bonferroni showed significant differences ($p \leq .001$) between all three negative emotions; Out of the three negative emotions, the students in the present study reported experiencing low levels of hopelessness, and anxiety was experienced at a higher level.

1.3.3. Gender and Grade Level Differences in Academic Emotions

Descriptive statistics of the study's measures in each grade level and gender are presented in Table 3. Independent sample *T*-tests were conducted between the study's measures for gender and grade level, and the results are presented in Table 3. Multivariate analysis indicated no gender x grade interactions ($F < 1$).

1.3.3.1. Gender Differences. As expected, no gender differences were found in either reading fluency ability, vocabulary knowledge, and RC performance. However, significant, yet relatively small (cohen's $d < .50$) gender differences were found in all achievement emotions except for hopelessness, which had a similar rating among both groups (see Table 3). The results indicate that girls demonstrated significantly higher levels of positive emotions than boys. Concerning negative emotions, the results were not consistent across all emotions. Significantly higher levels of anxiety and lower levels of boredom were reported among girls.

1.3.3.2. Grade Level Differences. Regarding the literacy measures, significant grade differences were found in all measures, as was initially hypothesized. Meaning, students in the fifth grade had higher reading fluency and RC performance, and larger vocabulary knowledge, compare with fourth-grade students. Concerning achievement emotions, significant, yet relatively small (cohen's $d < .50$) differences were found only in enjoyment, pride, and hopelessness (see Table 3). The younger students in fourth grade reported experiencing higher levels of enjoyment and pride in language arts lessons compare with fifth-grade students. However, a rather surprising finding was that fourth-grade students have

also reported significantly higher levels of hopelessness compared with fifth-grade students. No significant differences were found in anxiety and boredom.

Table 3

Descriptive Statistic by Gender and Grade Levels and T-*Test Results*

Gender	Boys (n = 517)		Girls (n = 533)		*t* test	Cohens' *d*
	M	*SD*	*M*	*SD*		
Reading Comprehension	57.15	21.76	57.63	21.03	.361	.02
Reading Fluency	56.5	16.44	55.59	15.91	.909	.06
Vocabulary	67.43	13.73	67.91	13.49	.577	.04
Hopelessness	1.67	.84	1.59	.85	1.62	.09
Anxiety	2.15	1.09	2.37	1.22	3.14**	.19
Boredom	2.10	1.25	1.79	1.11	4.11***	.26
Enjoyment	3.64	1.15	4.10	.92	6.94***	.44
Pride	4.11	.93	4.29	.81	3.32***	.21
Grade level	Fourth Grade (n = 663)		Fifth Grade (n = 387)		*t* test	Cohens' *d*
	M	*SD*	*M*	*SD*		
Reading Comprehension	54.09	21.11	63.06	20.85	6.69***	.43
Reading Fluency	52.77	16.08	61.62	14.85	9.06***	.57
Vocabulary	65.59	13.43	71.24	13.17	6.63***	.42
Hopelessness	1.69	.88	1.53	.78	2.98**	.19
Anxiety	2.28	1.16	2.22	1.17	.88	.05
Boredom	1.94	1.21	1.95	1.17	.85	.01
Enjoyment	3.95	1.04	3.75	1.1	3.00**	.19
Pride	4.26	.85	4.09	.92	2.92**	.19

**$p \leq .01$, ***$p \leq .001$

1.4. Discussion

1.4.1. Characteristics of Achievement Emotions in Language Arts Lessons

The results indicate that students in the current study experienced high enjoyment and pride in language arts lessons, next to low feelings of boredom, anxiety, and hopelessness (based on the mid-range score of each emotion on the 5-points Likert scale). These results are also supported by other studies that examined achievement emotions in the language arts domain. For example, among fourth-grade students, the mean score for enjoyment in the classroom setting was 3.22 (*SD* = 1.54) at Raccanello et al. (2013), and 3.13 (*SD* = 1.21) at Raccanello et al. (2019), when in the current study the mean score was 3.95 (*SD* = 1.04). The mean score of pride at Raccanello et al. (2013) was 2.75 (*SD* = 1.50), and at the current study was 4.26 (*SD* = .85). The reported boredom in the current study had a mean score of 1.94 (*SD* = 1.21), while Raccanello et al. (2013) reported of mean score of 2.22 (*SD* = 1.23), and Raccanello et al. (2019) reported a mean score of 2.14 (*SD* = 1.19). For anxiety, Raccanello et al. (2013) reported a mean score of 2.34 (*SD* = 1.32), and the mean score at the current study was 2.28 (*SD* = 1.16). Finally, regarding hopelessness, Raccanello et al. (2013) reported a mean score of 1.88 (*SD* = 1.20), and the mean score at the current study was 1.69 (*SD* = .88). It should be noted that differences between the current study's results and Raccanello et al. (2013; 2019) could be due to cultural and/or linguistic aspects (Pekrun, 2006). However, overall, the results support the notion that students in the current study had a relatively positive emotional experience in language arts lessons.

Additionally, among the positive emotions, the levels of pride were higher than enjoyment, and among the negative emotions, hopelessness had the lowest ratings, while anxiety received the highest rating. These results are consistent with Raccanello et al. (2013), who also found higher levels of positive emotions and lower negative emotions in the classroom setting. The results are compatible with the notion that students experience a wide array of emotions while learning in class (Pekrun et al., 2002; Raccanello et al., 2018).

1.4.2. Gender and Grade Level Differences in Achievement Emotions

1.4.2.1. Gender Differences. Boys and girls in the current study exhibited similar reading fluency and RC performance and had similar vocabulary knowledge, yet gender differences were found in all achievement emotions except for hopelessness. The higher levels of enjoyment and pride and lower levels of boredom of girls in the current study are consistent with studies reported of more positive emotional reaction to reading activities among girls (McKenna et al., 1995; McGeown et al., 2015; Nootens et al., 2019; Raccanello et al., 2019; Ramirez et al., 2019; Zaccoletti et al., 2020b). Also, in line with previous studies are the higher level of anxiety reported by the girls. Blicher et al. (2017) reported higher levels of preoccupation with their reading difficulties among girls with reading deficits in third-fifth grades compared with boys with reading difficulties. Similarly, Katzir et al. (2018) found higher reading anxiety and lower reading self-concept among girls in the second grade, despite having higher performance in reading accuracy and equal reading rate. The findings of the higher anxiety of girls in the current study suggest that girls perceive succeeding in language arts lessons as more important than boys do. Yet although compared to boys, girls are more anxious about the possibility of failing in language art lessons, they both share the same perception of capability, as expressed in similarly low levels of hopelessness. This is not surprising since there were no gender differences in their reading fluency and RC performance, nor their vocabulary knowledge.

Thus, overall, these results suggest that while holding the same reading abilities, girls have a more positive emotional experience in language arts lessons, and though they are more concerned about failing in it, they consider themselves better capable to succeed, as expressed by their feeling of higher pride. Boys on the other hand may be less concerned about failing in language arts lessons, and their expectancies to either fail or succeed are similar to that of the girls. This assumption is supported by the literature on gender differences in the domain of reading, which points to the stereotype of boys' underachievement in reading as negatively

affects their emotions towards reading (Hartley & Sutton, 2013; Pansu et al., 2016). Studies have also reported that girls have a higher value for literacy activities than boys from the beginning of school years and until the end of high school (Archambault et al., 2010). It should be noted that gender differences in literacy-related emotions are not conclusive. For example, Ramirez et al. (2019) did not find gender differences in reading anxiety, but only in positive reading affect, and Raccanello et al. (2018) found no gender differences at all. However, the pattern of findings in the present study is compatible with that of most existing literature on gender differences in reading (Logan & Johnston, 2009), and also extend the knowledge on emotions of hopelessness and pride that have not been examined yet in the context of language arts lessons.

1.4.2.2. Grade Level Differences. Consistent with the study's initial hypotheses and with previous studies, which reported higher levels of positive emotions among younger students compared to older students (Raccanello et al., 2013; Raccanello et al., 2019; Sainio et al., 2019b), the fourth-grade students in the present study expressed more enjoyment and pride in language arts lessons then fifth-grade students. Yet contrary to those studies, the difference in the feeling of hopelessness was at the opposite pattern, with higher hopelessness reported among the younger fourth-grade students, while no grade level differences were obtained in boredom and anxiety. The control-value theory differentiates between emotions related to the learning activity and those related to its outcomes (Pekrun, 2006). Accordingly, boredom is an emotional response to the learning activity, which occurs when the activity lacks any incentive value. Therefore, the results may suggest that students in the fourth and fifth grades share a similar value for studying in language arts lessons. A possible explanation may lie in the special characteristics of the Israeli education system. Each year, fifth-grade students in Israel are been examined in a national language test (i.e. "Meitzav"), and throughout the school year, a substantial part of the learning resources invested in language arts lessons is for preparation for this test. Thus, the importance of succeeding in the national

test might maintain the value of learning in language arts lessons at this age level. This also fits with the surprisingly lower level of hopelessness in fifth-grade students, along with a similar rating of anxiety to the fourth-grade students. Being both prospective outcome emotions, hopelessness expresses a low expectation of success as well as a high expectancy of failure, and anxiety usually arises when the ability to avoid failure is uncertain (Pekrun, 2006). Holding higher reading fluency ability than fourth-grade students and being provided with extensive learning resources to meet the high literacy standards that are required in this age, and to succeed in the national test, may inhibit the growth of hopelessness and moderate anxiety in fifth-grade students.

To conclude, the current findings are in line with the literature in the domain of achievement emotions, supporting their multidimensionality (Pekrun, 2006), and their diversity in the education environment (Pekrun et al., 2002). Gender differences in achievements emotions are largely consistent with the pattern of differences documented in the literature, adding to the knowledge of emotions in the specific language arts lessons setting. Grade level differences in achievements emotions, under consideration of the unique features of the language arts curriculum in Israel, shed new light on the possible influences of specific curriculums on students' emotions and calls for consideration of their impact not only on achievements but on emotions as well. Educational implications will be discussed in the general discussion, from an integrated perspective of the study's findings.

Chapter 2. The Relationships between Achievement Emotions in Language Arts Lessons and Reading Fluency and Reading Comprehension

2.1. Theoretical Knowledge

Reading skills play a significant role in both academic, employment, and personal life. Substantial technological developments in the 21st century created a need for a broader range of literacy skills required to acquire knowledge and function in society today (Jones, & Flannigan, 2006). The significance of reading and comprehension abilities in this context has not diminished but increased, and even raised a need for a wider range of expertise and skills. The present chapter will review the components underlying reading fluency and reading comprehension, and their developmental course. Furthermore, a wide comprehensive review will address the emotional aspects involved in reading fluency and reading comprehension, to set the ground for understanding the necessity to investigate achievement emotions in this context.

2.1.1. Reading Fluency

Wolf and Katzir (2001) define reading fluency as a developmental-componential structure. According to their theoretical framework, reading fluency is initially formed by the gradual development of accuracy and automaticity of phonologic, orthographic, morphologic, semantic, and syntactic processes and their integration in a single word and connected text reading. Once this phase has been fully developed, reading fluency refers to the accuracy and rate of effortless smooth decoding with correct prosody, while attention is assigned to the comprehension process.

2.1.1.1. Development of Reading Fluency. Extensive research was conducted regarding the various underlying linguistic components and their roles in different stages of reading fluency development. The unique contribution of phonological (Adams, 1994; Katzir et al., 2012; Wagner et al., 1997), morphological (Desrochers et al., 2018; Kirby et al., 2012; Liu et al., 2017), and orthographic awareness in the early stages of developing basic decoding

skills, has been thoroughly investigated (Berninger et al., 2010; Katzir et al., 2006), as has that of naming speed (Landerl et al., 2019; Norton & Wolf, 2012; Wolf & Bowers, 1999). At advanced stages, the contribution of vocabulary (Katzir et al., 2012; Martin-Chang & Levy, 2005) and of higher-level syntactic and contextual processes (Lipka, 2017; Mokhtari & Thompson, 2006; Share & Bar-On, 2018), which also serve as main predictors of reading comprehension (Kim, 2020b; Klauda & Guthrie, 2008; Perfetti, 2007), has also been thoroughly studied. The impact of these processes on reading fluency depends on the unique characteristics of the orthography (Landerl et al., 2019; Ziegler & Goswami, 2005).

The Hebrew orthography is unique as it has two versions. Initially, Hebrew-speaking students learn to read in a transparent or pointed version, which includes diacritics (Share & Bar-On, 2018). By the fourth grade, students gradually abandon this system toward an opaque or non-pointed orthographic version, which relies on letters alone to designate both consonants and vowels, with no diacritics (Katzir et al., 2012; Shany et al., 2012). This advanced phase in reading fluency development is highly challenging; not only do reading demands increase as students engage more in reading complex texts (Chall, 1983), but they are also required to do so during a transition point when they are learning to master reading in a different orthography (Katzir et al., 2012). Since reading fluency stands at the heart of continuous academic development, its achievement, or difficulties in achieving it, has emotional effects. Therefore, it is extremely important to examine the emotional aspect of reading fluency among advanced readers.

2.1.1.2. Affective Aspects of Reading Fluency. Affective aspects of reading fluency were first investigated by Katzir and her colleagues (Kasperski et al., 2016; Katzir et al., 2018), focusing on the contribution of reading self-concept and reading anxiety. *Reading self-concept* refers to students' perceptions and beliefs regarding themselves as readers (Chapman & Tunmer, 1995). These perceptions develop over time as the result of students' reading experiences (Chapman & Tunmer, 1997; Chapman et al., 2000). High self-concept of ability

is related to positive achievement emotions, while low self-concept is associated more with negative emotions and thoughts, such as anxiety, worry, and preoccupation with the perceived difficulty (Goetz et al., 2008; Pekrun & Perry, 2014). *Reading anxiety*, a distinct negative emotional response explicitly related to reading, is defined by Katzir et al. (2018) as worry or fear about reading. Particularly, it is related to oral reading, which combines public speaking with the pressure to perform good decoding skills (Jalongo & Hirsh, 2010). Students with reading anxiety are negatively affected by the social feedback they receive from peers, teachers, and family about their reading ability, and express low confidence in their reading capabilities (Zbornik, 2001).

Why would affective aspects such as reading self-concept and anxiety be related to the specific proficiency of reading fluency? According to the internal/external model (the I/E Model; Marsh, 1986), students' academic self-concept is formed through two distinct comparison processes. The first is internal comparisons between self-perceptions of different abilities (e.g., self-perception of verbal ability versus self-perceived math ability); students' performance in one domain serves as a reference point for their performance in other domains. The second is external comparisons related to evaluations of one's ability compared to objective indicators (e.g., test score, performance feedback). An additional external comparison uses as a reference frame for constructing academic self-concept, is known as the Big-Fish-Little-Pond-Effect (BFLPE; Marsh & Parker, 1984); that is students' comparisons of their performance and achievements with that of their classmates. This framework is highly relevant to the act of reading fluency in the classroom. When students hear their classmates' reading, they can recognize decoding mistakes and notice differences in reading rate and fluency. In particular, speed of performance can be used to evaluate confidence in performance even among elementary school students (Ackerman & Koriat, 2011).

Kasperski et al. (2016) outlined this specific relationship between reading rate and reading self-concept among young students in the second and third grades. In their study,

reading rate predicted reading self-concept, beyond reading accuracy. According to their rate-appraisal model, young readers can rely on individual differences in reading rate as a reference frame for evaluating their reading ability. Fast readers see themselves as capable of accomplishing reading tasks and consequently adopt a positive perception of themselves as skilled readers. Slow readers, however, who compare their reading performance to that of their classmates, find reading tasks more difficult, perceive their reading ability less positively, and consequently form a deficient reading self-concept. Vaknin-Nusbaum et al. (2018) also found a decline in self-concept and motivation among young second-grade low reader achievers. Examining the relationship of reading fluency with both reading self-concept and reading anxiety in the second grade, Katzir et al. (2018) found a negative relationship between reading anxiety and reading self-concept. Reading self-concept was predicted by reading rate and accuracy (both components of reading fluency), beyond the influence of reading anxiety, and mediated the relationship between reading rate and reading anxiety. Their findings imply that reading rate has a unique contribution to both reading self-concept and reading anxiety and that its effect on self-concept also influences their sense of worry and anxiety about reading. These studies provide a framework for understanding the relationship between reading fluency and the emotional aspects evident in young readers. Accordingly, slow readers with a low perception of reading competence, feel intimidated by reading. Subsequently, Ramirez et al. (2019) also reported a direct effect of reading anxiety on reading accuracy among 607 first and second-grade students. In line with the bidirectional relationship between emotions and achievements (Pekrun, 2006), they concluded that reading anxiety acts both as a source as well as a result of poor reading performance. It is important to note that these are the few studies that examined the specific association between reading anxiety and reading fluency among typical readers in their native language, as most studies in this domain focused primarily on second language learners (Piccolo et al., 2017).

Aside from reading self-concept and reading anxiety, less is known about other emotional constructs, that may be associated with reading fluency. Previous studies reported a negative effect of general anxiety and its symptoms on reading fluency among first-grade students (Grills-Taquechel et al., 2013; Grills-Taquechel et al., 2012). Fulmer and Tulis (2013) reported contradictory findings among sixth and seventh-grade students, in the relationship between reading fluency, and the interest and affect while performing a challenging reading task. Low levels of reading accuracy were linked with lower rates of interest during the task, however, at the beginning of the task low interest was related to high reading accuracy. Despite this contradiction, their findings indicated that reading fluency is a significant predictor of adolescents' emotional response in performing reading tasks.

Since reading fluency is a core academic skill for overall academic development (Rasinski et al., 2005) which is considered an indicator of reading competence (Fuchs et al., 2001), and a bridge to reading comprehension (Kim, 2020b; Kim et al., 2010; Pikulski & Chard, 2005), the study of emotions related to reading fluency, is important.

2.1.2 Reading Comprehension

According to the RAND reading study group, Reading Comprehension (RC) defines as a process of extracting and constructing meaning through interaction and involvement with written language (Snow, 2002). In the RC process, the reader builds a representation of the text on three levels. The basic level, known as “surface structure,” involves the decoding of the exact words in the text. Next, at the “text base” level, the reader creates a representation of the ideas written in the text. Finally, the third and highest level involves the production of a “mental model,” which constitutes an integration of information from the text with the reader's existing background knowledge (Kintsch, 1998, 2012).

2.1.2.1. Models of Reading Comprehension. Over the past three decades, various theoretical models have been developed to explain which reader characteristics are related to the RC process. The "Simple View of Reading" (SVR), a theoretical model proposed by

Gough and Tunmer (1986), suggests that successful RC depends on a combination of two main constructs, decoding skills and language comprehension. Many studies have found the SVR to explain substantial variance in RC in a wide age range and different orthographies (Catts et al., 2006; Florit, & Cain, 2011; Harlaar et al., 2010; Hoover & Gough, 1990; Johnston & Kirby, 2006; Joshi & Aaron, 2000; Joshi et al., 2015; Kendeou et al., 2009; Savage, 2006). An extensive study was conducted on the underlying cognitive and linguistic components related to the SVR variables, resulting in a multi-componential view of RC. Low-level processing skills such as phonological awareness, orthographic processing, and rapid automatized naming, alongside deficits in memory and morphological, semantic, and syntactic knowledge, have thoroughly studied and are known as significant predictors of RC (Bishop & Snowling, 2004; Cain et al., 2004; Casalis et al., 2004; Compton et al., 2012; Katzir et al., 2006; Swanson et al., 2009). In his *lexical quality hypothesis*, Perfetti (2007) emphasized the importance of the reader's word knowledge, which presumably enables the successful connection of word meanings to their context in the text. Also, a large body of research has supported the significant role of high-level processing skills in the RC process, including attention, working memory, metacognitive abilities, and background knowledge (Berninger & Abbott, 2013; Cain, 2009; Cain et al., 2004; Cutting & Scarborough, 2006; Kim, 2015, 2017; Locascio et al., 2010; Oakhill et al., 2003; Perfetti, & Stafura, 2014; Sesma et al., 2009; Stern & Shalev, 2013). However, though cognitive and linguistic components explain a significant part of the variance in RC, there is still a considerable percentage of unexplained variance (Conlon et al., 2006). According to the RAND model of RC (Snow, 2002) and the findings of Conlon et al. (2006), RC also involves emotional processes such as motivation, perceptions of reading competence, and attitudes toward reading. In line with this view, and going beyond linguistic and cognitive variables, the interactions between the reader, the text, and the task in the RC process involve multiple emotional components.

Regarding the *reader*, reading motivation and related measures such as self-efficacy, academic self-perception, and reading self-concept have been shown to contribute to the reading process and to affect RC (Chapman & Tunmer, 2003; Chapman et al., 2000; Guthrie et al., 1999; Katzir et al., 2009; Nevo et al., 2020; Solheim, 2011). Concerning the involvement of emotions, scarce studies examined specifically readers' academic emotions related to RC. In particular, anxiety was found with a negative relationship with RC (Tysinger et al., 2010; Zaccoletti et al., 2020a). The association between anxiety and academic functioning, including reading, is mediated by cognitive processes such as attention (Jarrett et al., 2015). According to the Attentional Control Theory (Conners, 2009; Eysenck et al., 2007), anxiety impairs processing fluency and attentional control. Specifically, when a task stimulus is perceived as a threat, attentional resources are invested in responding to the threat, reducing the attention focused on task performance. This leads to difficulties in executive functions, which in turn leads to greater distraction during task performance, extended duration of execution, and impaired dual-task performance. Yet it should be noted that most existing study on the association between anxiety and RC focused on second language learners (Jafarigohar & Behrooznia, 2012; Sellers, 2000; Wu, 2011) or students with learning difficulties (Blicher et al., 2017), and less is known about this association regarding RC in the students' native language, and among students with standard reading proficiency.

As to the relation between RC and the *text*, emotional features are also related to text characteristics. Primary, text processing and comprehension are influenced by emotions related to the text content (Chevrier et al., 2019; Muis et al., 2015; Trevors et al., 2016), as well as by emotional features of the text itself (Trevors & Kendeou, 2020). Additionally, different literary genres are characterized by different linguistic and cognitive features (Cutting & Scarborough, 2006), which are related to various emotions. Narrative texts usually have the same text structure, in which various actions, events, and emotional experiences are described, while expository texts provide factual information in various structures (Hall et al.,

2005). Thus, narrative text comprehension needs more emotional resources than expository text comprehension. To create a mental model of narrative texts, the reader has to generate emotional inferences related to the protagonists' emotions, thoughts, and intentions, based on the information in the text and subjective emotional knowledge aroused by the text (Dijkstra et al., 1995; Kneepkens & Zwaan, 1995; Mar et al., 2011). Refutation texts, aimed at changing readers' misconceptions (Kendeou et al., 2014b), also generate different emotions (Muis et al., 2018; Trevors et al., 2016).

Finally, after reading the text, readers perform RC *task*s, usually constructed with questions or other activities that are part of the text processing. These tasks assist the readers to achieve a certain purpose related to the specific text (e.g., Knowledge, application, and engagement) and contribute to increase their world knowledge and improve their RC skills (Snow, 2002). Like texts, different RC tasks require different cognitive and emotional capabilities. For example, Solheim (2011) found reading self-efficacy as a significant positive predictor of multiple-choice comprehension task's scores but not of constructed-response comprehension task's scores among fifth-grade students with low reading self-efficacy. Such a difference was not found among students with high reading self-efficacy. Moreover, task performance itself may evoke a wide range of emotions that can influence task processing and achievements (Pekrun, 2006).

Integrating the multiple components and processes involved, recently, Kim (2017, 2020a, 2020b) proposed a hierarchical interactive dynamic model of reading, which encompasses the various theories and components and their inter-relations. According to her theoretical framework, RC proficiency is built on word reading and linguistic comprehension. In turn, word reading skills rely on basic linguistic components (i.e., phonology, morphology, and orthography), and linguistic comprehension is based on high order cognition (e.g., inference, reasoning, self-regulation, monitoring, etc.) and basic oral language skills (i.e. vocabulary and grammatical knowledge). This array of hierarchical relations relies on general

cognitive skills and executive functions (i.e., working memory, inhibition, shifting, and attention control), and interacts with background knowledge, discourse knowledge, and socio-emotions toward reading. The main characteristics of this framework are that the multiple direct and indirect relationships are bidirectional and dynamic, dependent on developmental aspects and individual reader's characteristics, as well as on RC measurement and evaluation aspects.

Yet, the research in the domain of emotions in RC did not address the hypothesized direct and indirect relationships of emotions and RC, particularly that of the wide range of academic emotions involves. Due to their significance in learning processes, including RC, a broader profound examination of their relationships with RC is of great importance.

2.1.2.2. Academic Emotions and Reading Comprehension. The study on academic emotions related to RC has focused on reader's state emotions, that are, emotions experienced in a specific time and setting during reading and related tasks' performance. Mood studies reported a significant positive association between RC processing and positive mood compared with neutral or negative moods (Bohn-Gettler & Rapp, 2011; Scrimin & Mason, 2015). Although these findings indicate a significant association between emotions and RC, it should be noted that they were obtained by using a mood-induction methodology, whose effect on performance is not necessarily guaranteed. For example, Tornare et al. (2017) examined the relationship between induced learning-related joy and achievements in different reading tasks among fifth-grade students. They found higher performance on a basic grammar task among joy-induced students with lower linguistic abilities compared to the control group, while the joy induction did not affect the level of performance in a RC task, regardless of students' linguistics skills.

Another line of research work examined self-reports of epistemic emotions, specifically related to the process of acquisition and construction of knowledge during reading (Pekrun, & Linnenbrink-Garcia, 2014). Muis et al. (2015) reported various patterns of association

between different epistemic emotions and RC strategies and achievements. They found that positive epistemic emotions such as curiosity and enjoyment positively predicted profound processing strategies, while the negative emotion boredom was negatively correlated with the use of various strategies (rehearsal, critical thinking, and elaboration), indicating the maladaptive influence of this emotional experience. Anxiety positively predicted rehearsal strategies despite being a negative emotion. This finding is in line with the literature on relationships between anxiety and bottom-up focused-attention learning processes (Bohn-Gettler & Rapp, 2011; Bohn-Gettler & Rapp, 2014; Levine & Edelstein, 2009). In a study on a population of adult students who read texts containing conflicting information about a topic, positive epistemic emotions of surprise and curiosity were shown to be positive predictors of the learning process. Confusion was a negative predictor, as it was related to impaired memory for conflicting information. Interestingly, however, enjoyment was negatively correlated with learning outcomes, while anxiety was positively correlated to text-based comprehension (Trevors et al., 2017a). Altogether studies in the domain of epistemic emotions in the process of knowledge construction indicate of significant association between epistemic emotions and learning strategies and RC performance (Chevrier et al., 2019; Muis et al., 2018; Trevors et al., 2017a).

Further evidence for the involvement of emotions in the RC process has emerged from studies that found physiological responses during reading (Daley et al., 2014; Mason, et al., 2020). In a recent study among seventh-grade students, after controlling for prior knowledge and initial RC abilities, comprehension across texts was negatively predicted by heart rate, an index of emotional arousal, and positively by heart rate variability, an index of emotional regulation. Meaning, students demonstrated greater multiple-text comprehension when they were less emotionally reactive to the reading content, and the better they were able to self-regulate during reading (Mason et al., 2018).

Recently, Bohn-Gettler (2019) proposed to integrate theoretical frameworks related to both reader's emotions and RC processing. According to her PET (Process, Emotion, Task) framework, the effect of the reader's emotions on RC is a function of the comprehension process, the specific type of emotion, and the task's characteristics. Accordingly, both positive and negative emotions influence the comprehension process, especially during the "situation model" level. Positive emotions are considered to facilitate global processing, while negative emotions are assumed to enable more local processing. On the other hand, negative emotions can also reduce cognitive resources needed in the integration and construction of a mental model. These hypothesized effects of emotions are influenced by variables related to the text, the task, and the reader, and by control-value appraisals. In line with this framework, recent studies by Zaccoletti and her colleagues examined the relationships between RC and trait positive and negative achievement emotions related specifically to involvement with RC tasks in the school setting. In their study among eighth-grade students (Zaccoletti, et al., 2020b), significant negative relationships were found between RC performance and all the negative emotions, including anxiety, anger, shame, boredom, and hopelessness. These emotions were also found negatively related to working memory, thus supporting the literature on the negative maladaptive effect of anxiety on cognitive performance and achievement (Conners, 2009; Eysenck et al., 2007; Pekrun, 2006). In another study, Zaccoletti et al. (2020a) investigated a model of direct and indirect relationships between RC performance and control-value appraisals and achievement emotions (i.e. enjoyment, anxiety, and boredom) among fifth-grade students. They found that beyond the significant effects of gender, non-verbal skills, reading speed, and vocabulary, RC had a positive direct relationship with perception of control, and a negative direct relationship with anxiety, which also mediated the effect of control.

Since the relationships of reader's emotions and RC is subject to change depending on different characteristics of the comprehension process, the type of emotions, and the task

(Bohn-Gettler, 2019), it is essential to expand the body of knowledge on the relationship between RC and the wide array of achievement emotions. In this regard, emotions related to the classroom setting have not been studied before in relation to RC. Particularly achievement emotions experienced in language arts lessons are with great significance, as RC skills are being formally instructed in them. In addition to the feedback on their reading proficiencies and comprehension abilities received by their teacher during these lessons, while students engage in RC tasks in class, they are exposed to how their classmates function, to their comprehension level and accuracy abilities, and the speed of their task performance. These comparisons can influence their self-concept (Marsh & Parker, 1984) and consequently their emotions (Pekrun, 2006). Therefore, the current study will focus on students' achievement emotions in language arts lessons, which are significant to RC processing, especially among students in advanced stages of reading development who are subject to high literacy demands. Nonetheless, given that students in the current study were at the challenging stage of transition from reading in the shallow Hebrew script to reading in the opaque Hebrew orthography, students' achievement emotions might be of even greater significance.

2.2. Research Questions and Hypotheses

The present study aims to expand the knowledge regarding achievement emotions in reading processes. Specifically, it is directed to establish the claim that achievement emotions are related to reading proficiencies. A wide range of achievement emotions experienced in the language arts lessons setting, most of which have not been studied yet in the context of reading fluency and RC, will be evaluated. This examination among students in the fourth and fifth grades will shed new light on the emotional experience of students in advanced stages in the development of reading. The study will focus on two main questions:

1. What is the relationship between positive and negative achievement emotions in language arts lessons and reading fluency and RC achievements among fourth and fifth-grade students? Based on previous studies (Katzir et al., 2018; Zaccoletti et al., 2020a, 2020b),

it was hypothesized that reading fluency and RC will be negatively related to negative achievement emotions. Since no study so far has reported significant relationships between reading fluency and RC and specific positive achievement emotions related to reading, no prior assumption was made on this topic.

2. Are achievement emotions in language arts lessons have a direct effect on reading fluency and RC? Based on a previous study (Zaccoletti et al., 2020a) it was hypothesized that only several, but not all achievement emotions, will have unique direct effects on reading fluency and RC, yet no prior assumption was made concerning which of the emotions will have a significant effect.

2.3. Results

2.3.1. The Relationships between Achievement Emotions in Language Arts Lessons and Reading Fluency and Reading Comprehension

To address the first question, Pearson correlations were calculated between all the study's measures, The results are presented in Table 4.

Table 4

*Pearson Correlations between the Research Measures for the Whole Sample (*N *= 1,050)*

	1	2	3	4	5	6	7
1. Reading Comprehension	-						
2. Reading fluency	.424**	-					
3. Vocabulary	.587**	.359**	-				
4. Hopelessness	-.457**	-.368**	-.404**	-			
5. Anxiety	-.244**	-.160**	-.263**	.436**	-		
6. Boredom	-.131**	-.106**	-.096**	.441**	.268**	-	
7. Enjoyment	.037	.022	.041	-.321**	-.157**	-.673**	-
8. Pride	.104**	.123**	.106**	-.374**	-.216**	-.540**	.708**

Note. $^{**}p \leq .01$

The literacy measures, which are reading fluency, RC, and vocabulary knowledge were moderately positively correlated. As to correlations between literacy skills and emotions in language arts lessons, significant negative correlations were found with all negative emotions of hopelessness, anxiety, and boredom. However, it should be noted that boredom had only weak correlations with all the literacy measures, and that is due to the large sample in the current study. That as opposed to the moderate correlation of anxiety and hopelessness with the literacy measures. Regarding the association with positive emotions, significant positive weak correlations were found only with pride, and that is also due to the large sample size. The correlation with enjoyment was not statistically significant. These findings indicate that higher levels of reading fluency, RC performance, and vocabulary knowledge, are associated with lower anxiety, hopelessness, and boredom, and with a higher feeling of pride in the language arts lessons. Enjoyment in language arts lessons has no significant association with literacy skills.

2.3.2. Direct Effects of Achievement Emotions in Language Arts Lessons on Reading Fluency and Reading Comprehension

Structural Equation Modeling (SEM) analysis was conducted, to examine the direct effects of achievement emotions on reading fluency and RC. Latent variables were created for each achievement emotion variable. The model consisted of direct paths from each emotion to reading fluency and RC. Gender and age were entered as control variables. The model also included covariates between the emotional measures and between the residuals of the predicated variables. The final model had excellent fit to the data $\chi 2(138) = 372.886$ $p \leq .001$, CFI = .97, TLI = .96, RMSEA = .040, 90% CI = .035, .045, and SRMR = .036. The results indicating significant direct effects of achievement emotions in language arts lessons on both reading fluency and RC are presented in Table 5.

Table 5

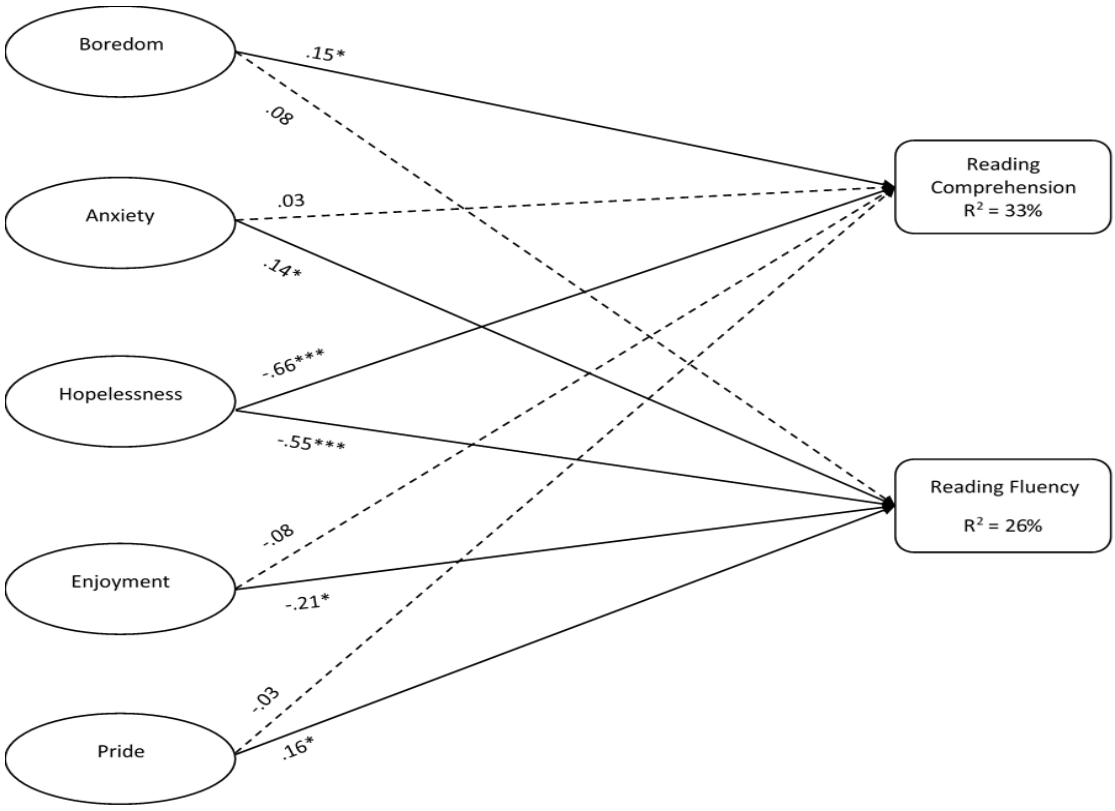
*Summary of SEM Model of Direct Effects of Achievement Emotions in Language Arts Lessons on Reading Fluency and Reading Comprehension (*N *= 1,050)*

Variable	Reading Fluency			Reading Comprehension		
	Estimates	SE	*P*	Estimates	SE	*P*
Hopelessness	-.55	.08	≤ .001	-.66	.09	≤ .001
Anxiety	.14	.08	≤ .05	.03	.08	≥ .05
Boredom	.08	.08	≥ .05	.15	.09	≤ .05
Enjoyment	-.21	.10	≤ .05	-.08	.11	≥ .05
Pride	.16	.08	≤ .05	-.03	.09	≥ .05

Note. Standardized regression weights and standard errors

Figure 1

*Summary of SEM Analysis of the Direct Effects of Achievement Emotions in Language Arts Lessons on Reading Fluency and Reading Comprehension (*N *= 1,050)*



Note. Standardized regression weights; Dashed lines are not statistically significant $p > .05$.

Figure 2 represents the direct effects that were found. Hopelessness and enjoyment had significant negative direct effects, and anxiety and pride had significant positive direct effects on reading fluency. Boredom was not found with a significant direct effect on reading fluency. As for RC, hopelessness was found with a negative direct effect, and boredom with a positive direct effect. Anxiety, enjoyment, and pride had no significant direct effect on RC. Grade level as control variable had positive direct effects on both reading fluency ($\beta = 0.21$, $p \leq .001$) and RC ($\beta = 0.13$, $p \leq .001$), indicating of the developmental aspect of reading abilities. Gender as a control variable had no significant direct effects on neither reading fluency nor RC. Overall, the model explained 26% of the variance in reading fluency, and 33% of the variance in RC.

It should be noted that several relationships between the emotions and the dependent variables have changed their values (from positive to negative and vice versa) between the correlation analysis presented in Table 4 and the SEM analysis presented in Table 5. For example, anxiety was negatively correlated with both RC and reading fluency, however, was significantly positively related to reading fluency at the SEM analysis. Beyond the differences in the statistical analyses, these results are also probably due to the methodological approach that considered the joint effect of the array of achievement emotions, as opposed to examining each emotion's effect separately. Interpretation of these findings will be fully discussed in the discussion.

2.4.Discussion

The current study contributes to a growing body of research, which emphasizes the significant contribution of emotions to reading skills, next to linguistic and cognitive components. The results indicated that a wide array of achievement emotions in the language arts lessons setting is significantly related to reading fluency ability and RC achievements. Among all the emotions evaluated, hopelessness was found with the strongest effects on both

reading fluency and RC. The relationships of the other emotions with reading skills had different patterns.

2.4.1. The Relationships between Achievement Emotions in Language Arts Lessons and Reading Fluency and Reading Comprehension

The results from the correlations analysis indicated that students' high reading skills are related to feeling proud of their learning in language arts lessons, as well as to experiencing less boredom in class, and being less concerned over failing or incapability in their studying. These findings are in line with the control-value theory of achievement emotions (Pekrun, 2006), accordingly, academic achievements are positively related to positive emotions and negatively associated with negative emotions, as was found in other domain such as math (Goetz et al., 2007; Putwain et al., 2018).

Enjoyment, however, was the only emotion that was not significantly correlated with reading skills. This finding indicates that in the current study, students' level of enjoyment of learning in the language arts lessons is not related to their reading proficiencies. As the mean level of enjoyment in language arts lessons in the current study was high (see Table 2, p.22), these results imply that both students who have good reading skills and students who may have difficulties in reading, can enjoy studying in language arts lessons; Their level of reading proficiencies is not related to their level of enjoyment in language arts lessons. Though enjoyment is considered significant emotion in students' emotional experiences in the education environment (Pekrun et al., 2002), there are studies in other academic domains in which enjoyment was not significantly related to academic achievement. For example, Raccanello et al. (2019) found that enjoyment with learning math was significantly related to math achievements but enjoyment in literacy learning was not significantly related to language achievements among second and fourth-grade students. There can be several explanations for the insignificant correlations between enjoyment in language arts lessons and reading skills. At first, from a developmental perspective, studies have shown that students'

enjoyment in learning decrease along the school years, parallel to an increase in the feeling of boredom, especially from the fifth-grade forwards (Pekrun et al., 2007; Raccanello et al., 2013; Vierhaus et al., 2016). These trajectories of emotions may suggest that other emotions as boredom may have a stronger influence on achievements than enjoyment at this age. An additional explanation lies in self-regulation. Mega et al. (2014) found that positive emotions influence academic achievements through self-regulation. In line with their view, the findings from the current study suggest that experiencing positive emotions alone is not enough to significantly influence reading achievements and that other factors as self-regulation are needed to be examined as well to gain a more comprehensive perspective of this relation.

2.4.2. Direct Effects of Achievement Emotions in Language Arts Lessons on Reading Fluency and Reading Comprehension

The findings from the SEM analysis demonstrated significant results regarding the direct effects of achievement emotions in language arts lessons on reading fluency and RC. The results indicated that out of all the emotions evaluated, hopelessness in language arts lessons had the strongest significant direct effect on both reading fluency and RC, and that is beyond the significant developmental effect of grade level. According to the control-value theory (Pekrun, 2006), the feeling of hopelessness arises when students lack control over their ability to successfully accomplish a certain task and avoid failure in it. Hopelessness is related to lower motivation and causes a distraction that impairs effective task processing (Abela & Seligman, 2000; Pekrun et al., 2002). When students perceived themselves as incapable to succeed in language arts lessons, they may feel more hopeless. As its effect is maladaptive, high hopelessness can be manifested in lower resources invested in reading practices, thus negatively influencing reading performance. Yet the less hopeless they feel, the more capable students perceive themselves to be. This motivates their actions in achieving their learning goals. Therefore, due to the low level of hopelessness in the current study (see Table 2, p.22),

the results suggest that student's reading fluency proficiency and RC task performance are directly influenced by self-perception of their capability to succeed in language arts lessons.

Next to the significance of hopelessness in predicting both reading fluency and RC, the patterns of direct effects of all the other emotions in language arts lessons were not consistent. Anxiety, enjoyment, and pride were significant predictors of reading fluency, while only boredom significantly predicted RC. It should be noted that a statistically insignificant direct effect does not indicate a lack of influence on reading fluency and RC. In line with the view that emotions are interrelated, affecting one another (Izard, 1977, 2013; Izard et al., 2000; Plutchik, 2001), it can be that there are indirect effects through the significant predictors. Chapter 4 in p.73 will attempt to broaden this perspective.

Out of all the emotions included, anxiety is the most studied academic emotion that was found negatively related to achievement across multiple age groups and academic domains (Hembree, 1988). Though the correlation analysis indicated that anxiety in language arts lessons is negatively related to reading skills, it was found as a positive predictor of reading fluency. This contradiction supports the multidimensionality of emotions, particularly of anxiety (Pekrun, 2006; Pekrun et al., 2011); the reasons for feeling anxious are varied, as for some it is the result of poor academic capabilities while others fear failing to meet social expectations (Zeidner, 2014), and consequently, the responses are diverse as well. Additionally, according to the control-value theory, the influence of positive and negative academic emotions is not necessarily consistent and can be affected, among other things, by the degree of activation (Pekrun, 2006). From that perspective, anxiety as a negative activating emotion may weaken one’s intrinsic motivation to engage in a certain activity, while strengthening extrinsic motivation to invest more effort to avoid failure (Fiedler & Beier, 2014; Pekrun et al., 2002; Pekrun et al., 2011). For instance, Tulis and Fulmer (2013) found that continuous engagement and persistence during a difficult reading task were positively related to both enjoyment and anxiety among sixth and seventh graders. Further,

Päivinen et al. (2019) reported that the achievement value of a challenging reading task in students with typical reading ability was related to higher negative emotions, whereas among students with severe reading disabilities it was related to higher positive emotions. They suggested that typical readers that highly value succeeding in reading tasks and are used to doing well in them, may experience more pressure to maintain their success, especially if they face a challenging reading task. Thus, it is plausible that students who have higher motivation to succeed in language arts lessons and are anxious about the possibility of failing or underachieving compared to their classmates, practice reading more to improve their performance and ensure their success.

Another important consideration is that in contrast with previous studies (e.g., Katzir et al., 2018), the participants in the current study were in an advanced developmental stage. It may be that the relationship between anxiety and reading fluency changes along with reading development. Reading fluency is the primary skill that develops in the early stages of the reading acquisition process, while students in advanced stages are required to develop higher literacy proficiencies beyond basic decoding skills (Chall, 1983; Murnane et al., 2012). Thus, anxiety may be negatively related to the reading fluency of young students who are not fully in control of their ability to read fluently, while this may not be the case for older students. Feeling anxious due to higher literacy demands, older students may invest extra effort in achieving reading fluency expertise which is fundamental to accomplishing complex reading tasks.

A further unexpected finding is the negative direct effect of enjoyment in language arts lessons on reading fluency, and that is despite previous findings from the correlations analysis, by which enjoyment in language arts lessons was not significantly correlated with either of the literacy skills, including reading fluency. This finding suggests that though the level of enjoyment in language arts lessons is not necessarily related to a low or high level of reading proficiency, in practice it does have a significant effect on reading fluency.

Experiencing enjoyment indicates that the activity is perceived as valuable and achievable (Pekrun, 2006). Enjoyment promotes motivation, and self-regulation learning, and enables flexible, creative modes of thinking, that positively affect achievements (Pekrun et al., 2002, 2011). Why then would enjoyment have a negative effect on reading fluency? A possible explanation is related to the features of language arts lessons in the upper grades of elementary school, focused on the development of higher and complex literacy skills required to promote deep comprehension and gain new knowledge (Murnane et al., 2012), which are not based solely on reading fluency (Cain et al., 2004; Kendeou et al., 2014a; McNamara et al., 2017). Thus, it may be that enjoying the challenging reading activities in language arts lessons at the upper grades will be related to investing more resources in applying higher literacy skills and reducing attention and effort in basic reading fluency. Conversely, lower enjoyment of the intricate tasks in language arts lessons can reduce motivation to meet the high literacy skills. In that case, the focus will be primarily on reading itself, thus having the potential to positively affect reading fluency. As an example, Torppa et al. (2020) investigated the emotional aspects of three distinct groups of students, one group with a deficit in reading fluency, a second group with RC difficulties, and the third group with both fluency and comprehension difficulties. Students with a difficulty only in reading fluency had a significantly higher positive attitude to school (as expressed in less school burnout and a higher feeling of liking school) and were more task-focused than the other two groups. The authors suggested that because task-focused behavior is more important for RC tasks, which require more time for concentrating and investing effort, more motivated students preferred to invest effort in a short easier reading fluency task than in a challenging RC task. Though previous studies indicated the positive impact of positive emotions and attitudes towards reading (Kasperski et al., 2016; McGeown et al., 2015), this is the first study to specifically examine its relationship with enjoyment in language arts lessons in a population of advanced readers. Thus, further research is needed to test this hypothesis.

In contrast with the negative effect of enjoyment, reading fluency was positively influenced by pride in language arts lessons. Studies have found positive relations between pride, motivation, self-regulation, and use of strategies, as well as with academic achievements (Pekrun et al., 2011; Weidman et al., 2016; Williams & DeSteno, 2008). The feeling of pride indicates that students attribute their success in language arts lessons to their reading abilities (Goetz et al., 2006; Pekrun et al., 2002). Experiencing pride has a significant motivational role in encouraging students to maintain their success. Even when faced with failure, some individuals may still feel proud, as they see learning from mistakes as an integral part of the learning process and gaining expertise in the material being taught (Tulis & Ainley, 2011). Since experiencing pride is grounded in the perception of high control over one's ability to succeed (Pekrun, 2006), the findings of the current study indicate that the more pride students feel during learning in language arts lessons, the more they see themselves capable to accomplish the main abilities required to succeed in them, which positively influence their reading fluency skills.

Boredom was the only emotion that was not found as a significant predictor of reading fluency, but together with hopelessness was found as a significant predictor of RC. As hopelessness, boredom is a deactivating negative emotion. However, hopelessness arises from a low perception of ability, while boredom is experienced regardless of inability or high ability, but due to lack of value (Pekrun, 2006). In the domain of RC, Graesser and D'Mello (2012) suggested that boredom can arise both by reader and text characteristics; boredom may occur when the text does not contain relevant information, or in the case that processing the text material goes beyond the reader's abilities. On the other hand, students can be bored and mind-wander when the text is too easy. Interpreting the findings on the positive direct effect of boredom on RC, the low levels of boredom reported by the participants in the present study (see Table 2 p.22) indicates that they highly value learning in language arts lessons and consider it as important. Therefore, it can be concluded that the relationship between low

boredom on low RC performance is a result of a discrepancy between individual abilities and the level of learning activities in the language arts lessons. Meaning, when students are not bored, that is, they see great value in learning in language arts lessons and invest in them, then the low RC achievements would probably be because of difficulty with RC.

To conclude, beyond emphasizing the emotional involvement in reading processes, the findings provide foundations for building an understanding of the emotional experience of Hebrew readers. The complex and varied involvement of the array of emotions in reading processes implies the emotionality of reading. Given the developmental stage in which the participants are, which is critical in terms of the reading development in general, and the Hebrew language in particular - the understanding that there is a high and complex emotional involvement in reading is of great significance, not only theoretically but educationally. From an educational perspective, the results regarding the significant impact of the feeling of hopelessness point towards the central role of enhancing students' feeling of capability. In that regard, the results call for schools to actively encourage students' self-directed learning. That is, to promote students' ability to independently initiate learning processes. Self-directed learning behaviors and skills include the ability of students to formulate learning goals, diagnose the specific needs in accomplishing them, and identify the required resources, both human and materials, to do so. These learning initiatives will also promote effective detecting and implementation of learning strategies, as well as the ability to properly evaluate learning outcomes (Knowles, 1975). A recent study by Schweder (2020) found that self-directed students experience more positive emotions and that engaging in self-directed learning is more beneficial for students in heterogeneous classrooms, such as those in the current study. Developing intervention practices that will focus on promoting self-directed learning, will have a positive impact on students' achievements (Sumantri & Satriani, 2017). Nonetheless, this is also expected to have an impact on their emotions and well-being, which is no less important (see Ben-Arieh et al. 2014; Ryff, & Keyes, 1995 for elaboration regarding the

meaning of the term well-being,). An additional educational aspect is related to learning materials and teaching practices. The findings regarding the significant contribution of boredom to RC call for educators to consider and choose wisely learning materials and practices. It is not necessarily a matter of choosing interesting topics and applying enjoyable teaching practices, but also a consideration of their suitability for the variety of abilities and needs of the students in the heterogeneous classroom. Overall, the findings indicate that achievement emotions in the language arts lessons are directly related to reading fluency and RC and that it is important to consider their involvement in them.

Chapter 3. The Relationship between Achievement Emotions in Language Arts Lessons and Reading Skills among Students with Different Reading Abilities

3.1. Theoretical Knowledge

3.1.1. Achievement Emotions among Different Learners

Studies on achievements emotions indicate differences among students with different cognitive abilities. Goetz et al. (2007) found that sixth-grade students with high abilities experience a positive pattern of emotions, in comparison with a negative pattern among students with low abilities, while students with moderate abilities manifested more boredom. In another study among ninth-grade students, Preckel et al. (2010) did not find a difference in the prevalence of boredom among gifted and nongifted students, but in the reasons for feeling bored; Gifted students felt boredom mainly due to under-challenge, while nongifted students attribute the feeling of boredom to being over-challenged. Low achievers, and mainly students with learning difficulties report higher anxiety, stress, and depressions compare to high achievers (Safree & Dzulkifli, 2009). However, Roos et al. (2015) found that anxiety is prevalent not only among low achievers but also among high achieving students. Considering these diverse findings, it is important to examine how achievement emotions in language arts lessons are expressed among students with different reading skills. In particularly examining achievement emotions among students with learning difficulties is of great importance. According to the Diagnostic and Statistical Manual of Mental Disorders (American Psychiatric Association, 2013), 5%-15% of school-age students have specific learning disorders, manifested in impairments in reading, writing, or math. Accordingly, reading disability can be expressed in difficulties in either word reading accuracy, reading rate and fluency, and RC. Although an extensive study was conducted on the linguistic and cognitive aspects related to RC among students with reading difficulties (Landerl et al., 2013; Perry et al., 2019; Vellutino et al., 2004), the research on the involvement of the wide range of achievement emotions among them is in its early stages. It should be noted that the emotions

of students with reading disabilities might differ from those of underachievers who are not necessarily with a learning disability.

3.1.2. Achievement Emotions among Students with Reading Disabilities

Studies have reported lower self-efficacy, academic self-perception, and reading self-concept among young and adolescent students with learning disabilities (LD), as compared to their non-LD peers (Chapman et al., 2000; Klassen, 2007; Lee & Zentall, 2012; Polychroni et al., 2006), and specifically among students with reading disabilities (Zeleke, 2004). Studies by Margalit and her colleagues emphasize the importance of the feeling of hope in the construction of self-efficacy, especially among students with LD (Idan, & Margalit, 2014; Lackaye, & Margalit, 2006; Mana et al., 2020). They found that seventh-grade students with LD had lower feelings of hope, which were related to lower self-efficacy, lower positive mood, and higher levels of negative mood compared to students without LD. This pattern was found even among a subgroup of LD students with high academic achievements (Lackaye et al., 2006). Similar results were obtained among adult students (Ben-Naim et al., 2017). Conversely, students with reading difficulties report higher levels of depression and anxiety (Nelson & Harwood, 2011), which are highly related to self-concept among students with LD (Margalit, & Zak, 1984). Two recent studies by Sainio and her colleagues have examined more broadly reading-related achievement emotions among students with reading difficulties. In their first study, Sainio et al. (2019a) examined literacy-related achievement emotions of hope, enjoyment, and anxiety among six grade students with and without reading difficulties. They found that students with reading difficulties had lower hope and higher anxiety in comparison to their peers without reading difficulties. In a subsequent study Sainio et al. (2019b), reported increased literacy anxiety and hopelessness among students with reading difficulties in the transition from the sixth grade to the seventh grade. The authors suggested that this might be due to the new and higher learning demands of the secondary school, which are more stressful for students with reading difficulties.

Regarding the effect of achievement emotions on academic achievements among LD students, studies that examined physiological responses during reading have shown that individuals with reading difficulties exhibit high physical arousal, typically related to anxiety. Meer et al. (2016) found a higher level of physical arousal as measured by Galvanic Skin Response among adults with reading disability compared to typical readers when asked to read aloud. Similar results were also obtained among students with reading difficulties in the third-eight grades compared with a control group of adequate readers (Tobia et al., 2016). Studies that used self-reports of emotions, indicated that lower levels of hope among students with reading difficulties were related to inferior overall academic achievements (Idan & Margalit, 2014), and specifically to poorer reading achievements (Sainio et al., 2019a). High levels of anxiety are also known for their negative influence on the reading performance of students with reading difficulties (Tsovili, 2004). Blicher et al. (2017) found that preoccupation in reading difficulties, an anxiety symptom, which is a process of repetitively thinking about self-doubt and concern over poor performance (Sarason, 1975, 1986), was negatively correlated with both reading fluency and RC among elementary school students with reading difficulties. They found that trait anxiety was negatively related to reading fluency, and had a unique contribution to variance in RC, beyond reading fluency. Additionally, anxiety mediated the relationship between students' preoccupation and RC achievements.

Recently, Päivinen et al. (2019) broadly examined achievement emotions among sixth-grade students with mild and severe reading disabilities, compared to their peers with adequate reading proficiency. More specifically, their study examined the relationship between a wide range of positive (i.e., joy, hope, and enthusiasm) and negative (i.e., anger, nervousness, anxiety, fear of failing, and hopelessness) achievement emotions during performing challenging and non-challenging reading tasks, and their control and value appraisals. Their results indicated that the relationships of emotions with task values and

efficacy beliefs were mediated by students reading disability level. Particularly for students with a severe reading disability, which had the poorest reading ability, a high attainment value was related to a higher rating of positive emotions and a lower rating of negative emotions during the reading task. Among all students, regardless of their reading level, positive emotions were associated with a high-interest value in the challenging task and with high efficacy beliefs in the non-challenging task. These preliminary results affirm the association between reading difficulties and a wide range of achievement emotions and their influence on reading achievements among advanced readers, both typical and deficient readers. Moreover, it suggests that students' level of reading difficulties has a unique effect on their emotional response.

Due to the importance of reading to academic and personal development and considering the unfortunate gloomy emotional experience of students with reading disabilities, it is important to study the achievement emotions of students with reading difficulties more thoroughly. In particular, the classroom environment is of great significance, especially language arts lessons, in which reading is the primary learning skill. In addition to the feedback on their reading proficiencies received by their teacher during the lesson, while students engage in reading tasks in class, they are exposed to how their classmates function, to their comprehension level and accuracy abilities, and to the speed of their task performance. These comparisons influence their self-concept (Marsh & Parker, 1984) and consequently their emotions (Pekrun, 2006). Since students with reading difficulties are known with lower self-concept, it is important to examine the influence of the classroom setting on their emotions and RC performance.

3.2. Research Questions and Hypotheses

To expand the knowledge regarding achievement emotions and their relationship with and contribution to reading skills among students with different reading abilities, the study will focus on two main questions:

1. Are there differences in achievement emotions in language arts lessons among students with different levels of reading fluency ability? While differences in literacy skills among the groups are expected, it is hypothesized that there will be differences in their achievement emotions in language arts lessons; the higher the reading ability, the higher the positive emotions will be, and the lower the level of negative emotions (Goetz et al., 2007; Päivinen et al., 2019; Sainio et al., 2019b).

2. Do achievement emotions in language arts lessons has a significant contribution to reading fluency and RC achievements of students with different levels of reading ability? Based on previous studies, achievement emotions were expected to have a significant contribution to reading fluency and RC among all groups (Blicher et al., 2017). However, It is hypothesized that not all emotions will be found as significant predictors of reading fluency and RC among all groups (Zaccoletti et al., 2020b); no prior assumptions were made regarding which of these emotions will be found as significant predictors at each group, as this subject has not been studied to date.

3. Are there differences in the interrelationships between achievement emotions in language arts lessons and in their contribution to predicting reading fluency and RC at each group? Based on the literature indicating differences in achievement emotions among students with and without reading difficulties (Päivinen et al., 2019; Sainio et al., 2019a), it was hypothesized that there will be differences among groups, with a positive pattern of relationships among students with intact reading skills in comparison with students with low reading abilities. Differences are also expected between high and average achievers (Goetz et al., 2007), with a more positive pattern of relationships among students with high reading ability.

3.3. Results

3.3.1. Preliminary Analysis

The participants were divided into three groups based on their reading fluency skills, by their z-scores in TOWRE to average (AF; z score in the range of -1 and 1 *SD*; *n* = 703), low (LF; z score below -1 *SD*; *n* = 179) and high (HF; z score above 1 *SD*; *n* = 168) reading fluency[1]. A cutoff point of 1 *SD* below average is accepted in recognizing students with reading difficulties (Catts et al., 2001; Päivinen et al., 2019; Snowling et al., 2003). Descriptive statistics of the study's measures at each group are presented in Table 6.

3.3.2. Group Differences in Achievement Emotions in Language Arts Lessons

Multivariate analysis of variance of achievement emotions in language arts lessons, as well as of literacy skills was conducted between groups, using Bonferonni post hoc pairwise comparisons. The results (see Table 6 in p.59) indicated significant differences between all groups in literacy skills, as students in the LF group demonstrated the lowest performance in all literacy measures. Regarding achievement emotions, significantly lower levels of enjoyment and pride, and higher levels of hopelessness, anxiety, and boredom were found among LF students, compared with both AF and HF students. Differences in achievement emotions among the two groups of typical readers were found only in the feeling of hopelessness, which was significantly lower among the group of HF students.

3.3.3. Direct Effects of Achievement Emotions in Language Arts Lessons on Reading Fluency and Reading Comprehension among Students with Different Reading Skills

SEM analyses examining the direct effects of achievement emotions in language arts lessons were conducted for each group. The model consisted of five latent variables representing the five emotions measured, and direct paths to the two observed variables,

[1] Due to developmental differences in reading fluency by grade levels, z-scores in TOWRE were computed for each grade level based on its Mean and *SD*.

which are reading fluency and RC. Grade and Gender were entered as control variables. Covariates were allowed between latent variables and between the observed variables.

The model had excellent fit to the data $\chi 2(414) = 738.130$ $p \leq .001$, CFI = .96, TLI = .95, RMSEA = .027, 90% CI = .024, .031, and SRMR = .059. For the group of LF students, who had the lowest performance in literacy measures, 46% of the variance in reading fluency were positively predicted by pride ($\beta = .42$ $p \leq .05$), and negatively by enjoyment ($\beta = -.51$ $p \leq .01$), and hopelessness ($\beta = -.32$ $p = .052$). In explaining variance in RC, 33% of the variance in this group were negatively predicted by hopelessness ($\beta = -.45$ $p \leq .05$). Gender and grade level had no significant contribution to either reading fluency or RC.

For the group of AF students, holding average literacy skills in the current sample, 33% of the variance in reading fluency were negatively predicted by hopelessness ($\beta = -.33$ $p \leq .001$) and positively by anxiety ($\beta = .17$ $p \leq .05$), controlling for the significance of grade level ($\beta = .48$ $p \leq .001$). As to predicting RC, Pride ($\beta = -.25$ $p \leq .01$) and hopelessness ($\beta = -.66$ $p \leq .001$) negatively predicted 29% of the variance in this group along with the significance of grade ($\beta = .17$ $p \leq .001$).

Finally, for the group of HF students, whose literacy performance was at the highest level, 32% of the variance in reading fluency were predicted by pride ($\beta = .31$ $p \leq .05$), accounting for the significance of grade level ($\beta = .51$ $p \leq .001$). In predicting RC, 22% of the variance were positively predicted by pride ($\beta = .44$ $p \leq .01$), and negatively by hopelessness ($\beta = -.30$ $p \leq .05$), while grade level was not significant. Gender had no significant contribution to neither reading fluency nor RC among all groups.

Table 6

Summary of Descriptive and ANOVA Analyses of The Study's Measures between Groups

	Group	*M*	*SD*	*F* Pairwise comparisons	Partial Eta Squared
Reading Comprehension	LF	42.21	20.23	(2,1047) = 71.88***	.121
	AF	59.02	20.59	LF<AF<HF	
	HF	66.78	17.53		
Reading Fluency	LF	32.96	21.39	(2,1047) = 1035.08***	.664
	AF	56.48	8.23	LF<AF<HF	
	HF	78.76	10.05		
Vocabulary	LF	59.97	7.44	(2,1047) = 42.98***	.076
	AF	68.53	16.18	LF<AF<HF	
	HF	72.30	14.79		
Enjoyment	LF	3.674	1.06	(2,1047) = 3.92*	.007
	AF	3.910	1.08	LF<AF=HF	
	HF	3.943	1.01		
Pride	LF	3.923	.97	(2,1047) = 11.72***	.022
	AF	4.236	.86	LF<AF=HF	
	HF	4.336	.79		
Boredom	LF	2.291	1.28	(2,1047) = 9.44***	.018
	AF	1.887	1.17	LF>AF=HF	
	HF	1.817	1.14		
Anxiety	LF	2.632	1.18	(2,1047) = 12.69***	.024
	AF	2.216	1.16	LF>AF=HF	
	HF	2.051	1.08		
Hopelessness	LF	2.261	1.04	(2,1047) = 71.62***	.120
	AF	1.540	.76	LF>AF>HF	
	HF	1.343	.63		

Note. *$p \leq .05$, ***$p \leq .001$; LF – low fluency (n = 179); AF - average fluency (n = 703); HF – high fluency (n = 168); Pairwise comparisons - Bonferonni post hoc; Mean scores for reading comprehension refers to accuracy percent; Mean scores for reading fluency refers to the number of correct words per minute; Mean score for vocabulary refers to accuracy percent; Mean scores for achievement emotions in 1-5 points scale.

3.3.4. Group Differences in the Model of Relationships between Achievement Emotions in Language Arts Lessons and Reading Fluency and Reading Comprehension

A multiple group invariance testing procedure (Byrne, 2004) was conducted to examine group differences in the SEM model of relationships between achievement emotions in language arts lessons and reading fluency and RC (presented in Figure 2, p.43). The results are summarized in Table 7 (see p.64). At first, a CFA was conducted to examine measurement model invariance of the latent variables. In this procedure, an unconstrained baseline model was first constructed, by combining the models of all three groups without equality constraints between all parameters. The results indicated acceptable fit of the data $\chi2(324) = 949.408$ $p \leq .001$, CFI = .92, TLI = .92, RMSEA = .043, 90% CI = .040, .046, and SRMR = .074. The next step was to examine measurement model invariance by constraining the factor loadings of the latent variables to equality in all three groups. The model showed acceptable fit to the data $\chi2(335) = 963.561$ $p \leq .001$, CFI = .92, TLI = .92, RMSEA = .042, 90% CI = .039, .045, and SRMR = .078. The increase in $\chi2$ in comparison to the unconstrained model was not significant $\Delta\chi2\ (11) = 12.875$, $p \geq .05$, thus indicating that the latent variables of all three groups are similar. This result implied that the items functioned similarly for all three fluency groups, and therefore any subsequent difference that would be found in the structural paths could not be attributed to differences in the way that students with low, average, or high reading fluency interpreted the items.

Next, to examine whether there were group differences in the models' paths, the following SEM models were formed by adding equality constraints to the measurement model. These models' fit was compared to that of the constrained measurement model for evaluating the plausibility of the additional constraints.

The first model that was evaluated examined the correlations between the emotion variables. As group differences were found in all emotions, this model tested whether the strengths of relations between the different emotions were significantly different according to

group affiliation. Constraining the correlations to equality under the condition of equal factor loadings for all groups showed good fit to the data $\chi2(481) = 867.702$ $p \leq .001$, CFI = .96, TLI = .95, RMSEA = .028, 90% CI = .025, .038, and SRMR = .089. In comparison to the measurement model, the significant increase in chi-square value AF $\Delta\chi2$ (126) = 95.86, $p \leq$ .05 indicated group differences. Subsequent analyses constraining each correlation to equality yielded several significant results. The first was the correlations between anxiety and enjoyment between LF and both AF $\Delta\chi2$ (1) = 6.896, $p \leq .01$, and HF $\Delta\chi2$ (1) = 4.270, $p \leq .05$ students, *r*s = .072 ($p > .05$), -.165 ($p \leq .001$), -.167 ($p \leq .05$), respectively. These results imply that while among students with LF experiencing enjoyment is not related to their feeling of anxiety, for AF and HF students higher feeling of enjoyment is related to lower anxiety. The second, was the correlations between hopelessness and anxiety between HF and both AF $\Delta\chi2$ (1) = 8.390, $p \leq .01$, and LF $\Delta\chi2$ (1) = 5.580, $p \leq .05$ students, *r*s = .153, .303, .570, all *p*s ≤ .001, respectively. These results suggest that the strength of the relation between hopelessness and anxiety is highest among LF students. The third, was for the correlation between anxiety and pride between AF $\Delta\chi2$ (1) = 8.001, $p \leq .01$, and LF students, *r*s = -.240 ($p \leq .001$), .051 ($p > .05$), respectively. These findings imply that among students with LF experiencing pride is not related to their level of anxiety, but among students in the AF group higher feeling of pride was related to lower anxiety. The fourth and final result was found for the correlation between hopelessness and boredom between LF and both AF $\Delta\chi2$ (1) = 6.108, $p \leq .05$, and HF students, $\Delta\chi2$ (1) = 8.048, $p \leq .01$, *r*s = .762, .445, .290 all *p*s ≤ .001, respectively. These results indicate that the strength of the relationship between the levels of boredom and hopelessness is the strongest among students in the LF group.

The second model that was evaluated for group differences, tested the relations between achievement emotions in language arts lessons and the observed variables, that is, whether there were significant group differences in the effects of emotions on reading fluency and RC. Under the condition of equal factor loadings for all groups, constraining the direct

paths to the observed variables to equality resulted in excellent fit to the data $\chi 2(509) = 909.559$ $p \leq .001$, CFI = .96, TLI = .95, RMSEA = .027, 90% CI = .025, .030, and SRMR = .090. The significant increase in chi-square AF $\Delta\chi 2$ (174) = 54.00, $p \leq .001$ implies that there were differences in the influence of emotions on reading fluency and RC among the groups.

Subsequent analyses constraining each path to equality resulted in significant differences for several paths, yet only between the groups of AF and HF students, namely, the typical readers. This means that the effects of emotions on reading fluency and RC were different only between these groups, while there were no differences in those effects in comparison to the group of LF students, with lower reading skills. Concerning the effects of emotions on reading fluency, significant increase in chi-square $\Delta\chi 2$ (174) = 54.00, $p \leq .001$ was found in the path from hopelessness $\Delta\chi 2$ (1) = 5.74, $p \leq .05$, of HF and AF students, βs = .014 ($p > .05$), -.66 ($p \leq .05$), respectively. Meaning, the difference between the insignificance of hopelessness in predicting reading fluency among HF students, in comparison to its significance among AF students, is statistically significant. In addition, significant increase in chi-square $\Delta\chi 2$ (1) = 5.29, $p \leq .05$ was found in the path from anxiety to reading fluency of HF and AF students, βs = -.131 ($p > .05$), .171 ($p \leq .05$), respectively. These findings indicate the significance of the difference in anxiety as being a positive predictor among AF students, in comparison with its insignificant contribution among HF students.

As to the paths from emotions to RC, significant increase in chi-square $\Delta\chi 2$ (1) = 13.51, $p \leq .001$ was found in the path from pride of HF and AF students, βs = .441 ($p \leq .01$), -.254 ($p \leq .01$), respectively. These findings point toward the difference between pride as a positive predictor of RC among HF students, in comparison to its negative contribution to RC in the group of AF students. Finally, significant increase in chi-square $\Delta\chi 2$ (1) = 4.08, $p \leq .05$ was found in the path from hopelessness of HF and AF students, βs = .304 ($p \leq .05$), -.66 ($p \leq .001$), respectively. These results imply that hopelessness had a higher influence on RC among students in the AF group in comparison with HF students.

Table 7

Summary of Multiple Group Invariance Test Analysis

Model	χ^2 (d*f*)	Model Comparison	CFI	TLI	RMSEA [90% CI]	SRMR	$\Delta\chi2$ (Δd*f*)
M0	949.408 (324)		.92	.92	.043 [.04, .046]	.074	
M1	963.561 (335)	M0-M1	.92	.92	.042 [.039, .045]	.078	12.875 (11)
M2	867.702 (481)	M1-M2	.96	.95	.028 [.025, .038]	.089	95.86 (126) *
M3	909.559 (509)	M1-M3	.96	.95	.027 [.025, .030]	.09	54.00 (174) ***

Note. M0 - Unconstrained baseline model; M1 - Constrained factor loadings of the latent variables; M2 - Constrained correlations under equal factor loadings; M3 - Constrained direct paths to the observed variables under equal factor loadings. $\Delta\chi2$ – Change in χ^2 in the comparison between models; Δd*f* - Change in d*f* in the comparison between models.

*$p \leq .05$, ***$p \leq .001$

3.4. Discussion

An important finding emerging from the present study is that individual differences between students with different reading abilities are not expressed solely in literacy proficiencies, but also in their emotional experience, and most importantly in the patterns of association of emotions with, and contribution to, reading achievements. The main findings underscore the importance of promoting a feeling of competency among all students, and particularly among deficient readers. Additionally, the results reveal differences between the two groups of typical readers, thus suggesting that their emotions' status should be interpreted with caution to prevent unnecessary consequences.

3.4.1. Achievement Emotions of Students with Different Reading Abilities

The results from the current study indicate that students in the LF group had not only the lowest literacy performance but significantly higher ratings of negative emotions and lower positive emotions compared to both groups of typical readers. The findings are in line with the control value theory (Pekrun, 2006), accordingly, low perception of competence will evoke higher levels of negative emotions and lower levels of positive emotions, while the perception of higher capabilities will promote higher positive emotions and reduce negative emotions. These results are consistent with studies on students with reading disabilities, who report higher levels of negative emotions and lower positive emotions compared to their peers with intact reading skills (Nelson & Harwood, 2011; Sainio et al., 2019a; Sideridis, 2005; Torppa et al., 2020; Tsovili, 2004). Additionally, compared to students with HF who had the highest reading fluency ability, AF students had similar emotional experiences in language arts lessons, excluding their feeling of hopelessness, which was significantly lower among HF students. This finding underscores the unique effect of hopelessness in the current study. Consistent with the control-value theory (Pekrun, 2006), it implies that the higher the basic reading skills, the more students feel in control of their reading capabilities and the less hopeless they feel.

The multiple groups' invariance analysis expanded the knowledge regarding the inter-relationships between achievement emotions in language arts lessons, thus provided a deeper perspective of the way emotions operate among different students. The results indicated that not only did students in the LF group had the highest ratings of negative emotions, but that the strength of relationships between these emotions was the strongest among them in comparison with typical readers at the AF and HF groups. This finding suggests that the more these students felt hopeless, the higher they experienced boredom and anxiety in language arts lessons, thus underscore the detrimental effect of negative emotions. Other findings that strengthen these results were that among typical readers at the groups of AF and HF students,

feeling of anxiety had a significant negative relationship with enjoyment in language arts lessons, while this association was not significant among LF students. Similarly, feeling pride was significantly negatively related to anxiety among AF students, while this relationship was not significant among LF students. In other words, the higher levels of enjoyment and pride of students with intact reading skills were related to being less anxious, while the levels of anxiety were not related to enjoyment and pride of students with low reading abilities; whether these students enjoyed learning in language arts lessons, or experienced pride in them, did not affect their anxiety and vice versa. Overall, these findings not only underscore the maladaptive function of negative emotions for students with low reading abilities but also suggest that the potential beneficial effect of positive emotions cannot be exploited to reduce negative emotions. These findings point toward the possibility that the continuant experience of reading difficulties and lack of success in reading activities, which is expressed in higher negative emotions and stronger relationships between them, may have developed learned helplessness among students at the LF group. In that case, even if the situation is enjoyable or controllable, the expectation of failure or underachievement remains (Abramson et al., 1978; Nolen-Hoeksema et al., 1986). Therefore, several years of negative reading experiences might sustain the feeling of hopelessness among students with low reading abilities in upper elementary classes, even if they experience success and enjoyment in language arts lessons.

3.4.2. Similarities and Differences in the Model of Relationships between Achievement Emotions in Language Arts Lessons and Reading Fluency and Reading Comprehension among Students with Different Reading Abilities

Examining the patterns of relationships between achievements emotions in language arts lessons and reading achievements at each group, indicating the diverse effects of emotions. The results are in line with previous research by Päivinen et al. (2019), who investigated a wide range of reading-task related emotions among sixth-grade typical readers compared to students with reading disabilities (using a cut-off point as in the current study of

approximately 1 *SD* below the average mean score for reading fluency). The current study adds to their study the unique association with emotions in the specific setting of language arts lessons, thus widen the perspective on the emotional experiences of students with different reading abilities. The current study also proposes a deeper perspective on the unique relation of each discrete emotion with RC, as opposed to analyses regarding emotions' valence. This examination, which considers not only the effect of each emotion on achievement but also the way emotions operate together (Izard, 1977, 2013; Plutchik, 2001), sheds new light on the human emotional experience in an academic setting.

Similar to Päivinen et al. (2019) regarding the relationship between negative emotions and lower efficacy beliefs, regardless of reading fluency level, in the current study negative achievements emotions in language arts lessons were significantly and negatively related to reading skills across all three groups. In particular, hopelessness had a negative relationship with the proficiency of reading fluency among students at the AF and LF groups, and with RC achievements among all groups. Resulting from a low perception of self-control, when the possibility to fail is high, and lack of success is almost certain, hopelessness is considered a maladaptive response, which negatively affects motivation, effort, engagement, self-regulation, and strategy usage, thus negatively influences achievements (Pekrun, 2006; Pekrun et al., 2011). Interpreting the comprehensive impact of hopelessness, the fewer control students feel over their reading abilities and, the more they experience failure and underachieve success in reading activities, the more hopeless they feel. This may harm their motivation and can lead them to avoid investing effort and engage in reading activities, thus negatively affect their reading achievements. This finding is significant in particular for the group of LF students, who had the lowest overall literacy performance, and felt more hopeless compared to students in the other two groups of adequate readers. The percentage of variance in RC explained by the significant contribution of hopelessness alone in this group (33%), was the highest among all groups (29% among AF, and 22% among HF). This finding further

underscores the importance of providing support to this group, both academically and emotionally. It indicates that to foster success in reading, students should be provided with practical tools to improve their literacy proficiencies, but not just to enhance RC skills. Promoting a feeling of capability, can assist in decreasing the feeling of hopelessness, and will enable students to feel more confident in their abilities. The less hopeless they would feel the more motivated they will be to invest effort and continually engaging in reading. This will significantly contribute both to their achievements and their emotional well-being.

Regarding the effects of the other achievement emotions in language arts lessons except for hopelessness, different patterns of relationships were found in each group. In the group of LF students, reading fluency was predicted negatively by enjoyment in language arts lessons and positively by pride. Among the group of AF students, next to the significant negative influence of hopelessness, anxiety positively predicted reading fluency, and pride negatively predicted RC. Finally, among the group of LF students, reading fluency was positively predicted only by pride. Similarly, RC in this group was also predicted by the positive effect of pride, next to the negative contribution of hopelessness. These results emphasize the complexity and multidimensionality of emotions. While the common view sees the potential positive influence of positive emotions, next to the negative impact of negative emotions, the findings suggest that this is not the case. Anxiety with its potential in enhancing extrinsic motivation can have a positive influence on achievements (Fiedler & Beier, 2014; Pekrun et al., 2002; Pekrun et al., 2011). Similarly, though enjoyment is significant in promoting intrinsic motivation for learning (Pekrun, 2006) if it is driven by considerations of interest in the subjects rather than its importance, it will not necessarily be effective.

The diverse effects of pride among the three groups emphasize this complexity. The results indicated the positive effect of pride among both HF students, holding superior reading abilities, and among the group of LF students, whose literacy skills were the poorest. These results expand Päivinen et al. (2019) who found that higher efficacy beliefs were related to

higher positive emotions during a reading task among typical readers, but not among students with reading difficulties. Thought for both groups feeling pride positively influenced reading, it may be that the reasons for feeling proud are different among each group, as was found in other studies regarding boredom and anxiety (Acee et al., 2010; Daniels et al., 2015; Zeidner, 2014). Concerning the group of LF students, the education system in Israel provides additional learning assistance for students with low reading abilities or difficulties in achieving them. As part of this support system, these students participate in individual lessons or in small groups, whose purpose is to provide them with academic assistance targeted to the areas of difficulty. During these lessons, they practice reading through a variety of learning materials tailored to their abilities, to enable them to experience success, as well as to encourage and promote their motivation to read. This support, both educationally and emotionally, is assumed to be expressed in the positive contribution of pride to reading fluency proficiency. It should be noted that this assumption should be examined empirically, as this study did not have reports of whether students in this group did receive assistance. Regarding the group of HF students, it may be that holding the highest literacy achievements, and being proud of them, encourage them to continuously put extra effort to maintain their success. Owning not only excellent reading fluency but also significantly greater vocabulary knowledge and higher RC achievements, even in comparison to the group of average readers, indicate their constant effort to preserve their high status. This is in line with Miserandino (1996), who found that third and fourth-grade students with above-average abilities, that had higher perception of competence, reported positive emotions and persistence in school tasks, and had higher academic achievements than their peers with similar abilities, who had low perceived competence. Since HF students were also with significantly lower hopelessness, even in comparison with AF students, the findings suggest that their high linguistics abilities, being proud of their achievements, and feeling competent, motivate these students to persist in their learning efforts, thus positively influence their RC performance.

Yet in contrast with the positive effect of pride among LF and HF students, pride among AF students was found with a negative contribution to RC. A plausible explanation of this finding may be related to differences in self-regulation between groups. Students with average reading ability and vocabulary may think that their level of proficiency alone is sufficient to perform RC tasks. Their pride due to their basic linguistic capabilities may lead them to overestimate their abilities in other important skills required to successfully comprehend texts. This self-enhancement can detriment the development of supplementary RC skills, as these students may think that they do not have to invest effort in developing them. This could have a significant negative effect on their RC performance. This assumption that the students in the AF group may not sufficiently self-regulate their pride, is in line with other studies in which less-skilled comprehends demonstrated overconfidence in their understanding of texts (Glover, 1989; Maki et al., 2005). For example, Vidal-Abarca et al. (2010) investigated self-regulation strategies among seventh and eighth-grade students. Specifically, they examined their use in self-regulation processes during answering RC questions (i.e., monitoring the comprehension of the question, self-regulating the process of searching the answer in the text, and monitoring the decision to search). They found that skilled comprehenders were better at detecting inconsistencies in the questions and searching the text for answers and were more accurate at the decision to search the text than less skilled comprehenders. The authors proposed that less skilled comprehenders presumably had a less accurate mental representation of the questions, which interfered with their ability to detect inconsistencies in the questions. They also suggested that these students were also either less motivated or overconfident about their level of comprehension, thus decided more often not to search the text for answers, and when they did search the text, they were inaccurate at detecting the relevant information. These results support the notion that unregulated pride can negatively influence performance.

An additional important consideration in interpreting these findings is related to the feedback students receive in the classroom, especially from teachers (Holodynski & Kronast, 2009). When students hold average, normative linguistics proficiencies, in the absence of quality formative feedback, which directs them towards subjects that are needed to be improved (Shute, 2008), they may not be aware of their need to invest extra effort. These students may be mistaken to believe that their basic linguistics abilities, appreciated by the teacher, are all they need to successfully comprehend written text. Because self-enhancement produces a tendency to attribute success to capabilities and justify failure as a result of bad luck or not putting enough effort (Robins & Beer, 2001), the development of higher comprehension skills and future RC achievements are at risk.

Overall, the findings of group differences in the level of achievement emotions, their patterns of interrelations, and their contribution to reading skills, underscore the importance of developing more knowledge and accurate understandings of the influences of emotions in education regarding individual differences. These findings hold important educational implications. At first, the low levels of positive emotions and high levels of negative achievement emotions, and their significant negative contribution to reading achievements of students with low reading ability, underscore the vital need to provide them both academic and emotional support. However, the findings suggest that assistance should not be given only to students with low reading ability. The significance of hopelessness among all groups of readers calls upon supporting students' self-perceptions of abilities and encourages them to feel competent. In accordance with Miserandino (1996), the current study suggests that success alone is not sufficient to develop a genuine feeling of competence that will promote students' motivation to continuously invest effort in learning. Comprehensive work by Dweck and her colleagues suggest that students should be instructed to effectively interpret and manage themselves in situations of failure, to prevent those who feel low competency from developing learned helplessness, that is, attributing failure as independent of effort (Dweck,

1975, 1976; Dweck & Reppucci, 1973). In line with this view, if students will feel more in control over their abilities, and more competent at facing future challenges, they will develop beneficial adaptive behaviors not only to succeed in their learning, but to stay optimistic even when they fail, and to continue investing effort and learn from their mistakes (Skinner et al., 1998). Additionally, except from decreasing hopelessness, the findings of the diverse effects of pride also highlight the need to promote students' self-regulation abilities, both academically and emotionally. Those can be significantly improved by providing students quality formative feedback regarding their performance (Black & Wiliam, 1998; Shute, 2008).

In conclusion, the current study expands the knowledge of individual differences in achievements emotions, their associations with, and contribution to RC performance. The results indicate both similar and different patterns of relationships. From the findings emerged the central role of the feeling of hopelessness, which turned out to have a significant contribution to RC skills, regardless of fundamental reading abilities. Ultimately, perception of competency significantly contributes to RC achievements for all students. And yet, its effect is the most intense for students with low reading ability, whose RC performance is also related to their higher levels of boredom in language arts lessons. However, the findings place a potential warning from focusing attention solely on the emotional processes of students with low reading ability; their impact on RC achievements among typical readers should also be considered.

Chapter 4. An Integrated Dynamic Model of Direct and Indirect Effects in the Interplay between Reading Fluency, Vocabulary, Reading Comprehension, and Achievement Emotions in Language Arts Lessons

4.1. Theoretical Knowledge

While Chapter two reviewed various models that explain the RC process, the current chapter will review a model that is based on an integrative perspective of the whole reading processes and not just of RC. On this basis, an integrative model will be proposed, which examines the interplay between achievement emotions in language arts lessons and the various reading processes.

4.1.1. The Direct and Indirect Model of Reading (DIER)

The vast knowledge accumulated from all the studies conducted so far regarding the linguistic, cognitive, and emotional components related to the RC process (e.g., Bishop & Snowling, 2004; Cain et al., 2004; Conlon et al., 2006; Cutting & Scarborough, 2006; Gough & Tunmer, 1986; Perfetti, & Stafura, 2014) did not integrate the full range of relationships between the components and their impact on RC. Recently, a thorough line of research work conducted by Kim (2017, 2020a, 2020b), proposed an integrated perspective on the multiple theoretical frameworks developed over the years. Her direct and indirect model of reading (DIER) represents an interactive hierarchical dynamic model that encompasses the various theories and multiple components involve and their inter-relations. According to her DIER framework (Kim, 2020a, 2020b), RC proficiency is built on word reading and listening comprehension, both related to RC through text reading fluency. In turn, both main constructs, word reading and listening comprehension are built upon underlying linguistic and cognitive components. Word reading relies on basic linguistic components (i.e., phonology, morphology, and orthography), which are interconnected, while listening comprehension is based on fundamental oral language skills (i.e., vocabulary and

grammatical knowledge), and high order cognition (e.g., inference, reasoning, self-regulation, monitoring). This array of hierarchical relations relies on general cognitive skills and executive functions (i.e., working memory, inhibition, shifting, and attention control), and interacts with background knowledge, discourse knowledge, and socio-emotions toward reading. The main characteristics of this framework are that the multiple direct and indirect relationships are bidirectional and dynamic, dependent on developmental aspects and both individual readers' and texts' characteristics.

Understating the hierarchy between the multiple components in the RC process is based on mapping the relations between the cognitive and linguistic components in the text comprehension process (Kim, 2016). Accordingly, and in line with Kintsch (1998, 2012), the "surface structure" is based on linguistic components and involves general cognitions as working memory and attention that are needed to hold and process the information extracted from the text. This serves as the base for the "text base" level, in which vocabulary and grammatical knowledge are required to establish the representation of the ideas in the texts. Finally, high-order cognitions as generating inferences, reasoning, monitoring, and regulation processes integrate the ideas in the text to a coherent "mental model" (Kim, 2016).

The theoretical DIER model was examined empirically. Kim (2017, 2020a) found that word reading and listening comprehension were directly related to RC, and fully mediated the relationships of the wide array of linguistic and cognitive underlying components to RC among second and fourth-grade students. Listening comprehension was predicted by high-order cognitions and fundamental vocabulary and grammatical knowledge. In turn, vocabulary and grammatical knowledge predicted high order cognition and were predicted by working memory and attention. Word reading was predicted by foundational language and cognitive skills, grammatical knowledge, and attention. Attention and working memory had an indirect effect on RC, fully mediated by word reading and listening comprehension. An

additional analysis of the DIER (Kim, 2020b) which included text reading fluency was conducted among a sample of first-grade students. Similar results were obtained regarding the prediction of high order cognition, grammatical knowledge, vocabulary, and listening comprehension by working memory, as well as by the prediction of high order cognition and regulation by vocabulary and working memory, which were also related to word reading. However, in this analysis, after accounting for the direct effect of listening comprehension, text reading fluency but not word reading (i.e., decoding), had a significant direct effect on RC.

The theoretical framework of the DIER suggests that socio-emotions towards reading interact with the various components involves in the RC process. However, up until now direct and indirect effects of emotions in RC have barely been studied. The study of Zaccoletti et al. (2020a), which was presented in chapter two as one of the only studies in which the relationships between achievement emotions and RC were examined, is also among the only studies that investigated the direct effects of anxiety, boredom, and enjoyment related to engaging in RC activities on RC performance. They found a direct effect of anxiety on RC, after accounting for gender, vocabulary, reading speed, and nonverbal skills, as well as the perception of control over, and the value of performing RC tasks, as their final model explained 40% of the variance in RC. However, no study to date examined whether achievement emotions are also indirectly related to RC through other linguistic or emotional components. The current study will propose extended models that include direct and indirect effects of both linguistic components and emotions on RC. These models are expected to shed light on the interplay between RC, linguistic components, and achievements emotions in the language arts lessons setting.

4.1.2. Theoretical Rationale for the Development of an Integrated Model of Achievement Emotions in Reading

The current study is the first to examine thoroughly the associations of achievement emotions in language arts lessons with core reading proficiencies of reading fluency and RC, as well as vocabulary knowledge. The examination of this wide array of achievement emotions among advanced readers is expected to provide a profound perspective regarding the role of emotions that are experienced in the language arts classroom setting, in which students formally acquire reading skills. The proposed framework integrates theoretical models of reading and emotions, drawing on both the DIER model of reading (Kim, 2017, 2020a, 2020b) and the Control-Value theory of achievement emotions (Pekrun, 2006).

The DIER model posits word reading and linguistic comprehension as the main components which have a direct effect on RC. In that model, emotions are interactively related to both word reading and RC (Kim, 2020a). In our proposed model, we would claim that emotions are related to linguistic comprehension as well. We would suggest that because emotions are an integral part of literacy experiences, they would be related directly to both main constructs of RC, which are word reading and linguistic comprehension, and to the process of RC itself.

According to the control-value theory, achievement emotions not only influence academic achievement but are also affected by them (Pekrun, 2006). In that regard, since word reading and linguistic comprehension are foundational abilities in the development of RC skills (Catts et al., 2006; Florit & Cain, 2011; Gough & Tunmer, 1986; Harlaar et al., 2010; Hoover & Gough, 1990; Johnston & Kirby, 2006; Joshi & Aaron, 2000; Kendeou et al., 2009; Savage, 2006), it can be assumed that they both are influenced by and have an important impact on student's achievement emotions in language arts lessons. The premise of the model is that these linguistic skills develop over the years along with the RC abilities,

influencing on and being affected by achievements emotions in the language arts lessons. In addition, the proposed model is grounded by the view that emotions are also dynamically interrelated (Izard, 1977, 2013; Izard et al., 2000; Plutchik, 2001). Hence, not all emotions are expected to be directly related to the literacy measures but indirectly affect RC through mediation by other emotions.

4.2. Research Questions and Hypotheses

The current study will examine the hierarchical interactive relations hypothesis of DIER (Kim, 2017) in the specific domain of achievement emotions among students in the upper classes of elementary school. Evaluating all the components of the DIER is beyond the scope of this study. For the purpose of the current study, word reading fluency and vocabulary knowledge were evaluated as representing word reading and linguistic comprehension, respectively. The two research questions that were generated, examine the hierarchical interactive relations hypothesis in both directions of influence. Meaning, the effect of emotions on RC through linguistic components and the mediating role of emotions in the relationships between linguistics components and RC. The research questions are as followed:

1. Do achievements emotions in language arts lessons have direct effects on RC, and do word reading fluency and vocabulary knowledge mediates these effects?
2. Do achievements emotions in language arts lessons mediates the effects of word reading fluency and vocabulary knowledge on RC?

For both research questions, it was hypothesized that reading fluency and vocabulary will have significant direct effects on RC. Based on our previous analyses in chapter two (p.29), in which hopelessness was consistently found with the strongest direct effect on RC, it was hypothesized that it will have a significant direct effect on RC, and that is beyond reading fluency and vocabulary. No prior assumptions were made regarding the possible

direct and indirect effects of the other achievement emotions, as this is the first examination of the joint effect of this set of emotions in the specific language arts lessons context and the Hebrew language.

4.3. Results

4.3.1. A Nonhierarchical Model of Direct Effects of Achievement Emotions in Language Arts Lessons, Reading Fluency, and Vocabulary on Reading Comprehension

At first, a SEM model of non-hierarchical relations was tested, examining only the direct effects of reading fluency, vocabulary knowledge, and achievements emotions on RC. Latent variables were used for the emotions' variables while reading fluency, vocabulary, and RC were entered as observed variables. Correlations were allowed only between the emotions' measures, as the study is based on the notion that their effect on achievement is grounded in their inter-relations. Due to the developmental aspect of reading abilities and their inter-relations (Kim, 2020a), and the differences in emotions between fourth- and fifth-grade students, the SEM models were tested for each grade level separately.

Table 8

Model Fit Statistics for SEM Models of Direct and Indirect Effects in the Interplay Between Reading Fluency, Vocabulary, Reading Comprehension, and Achievement Emotions in Language Arts Lessons

Model	χ^2	*df*	*p*	CFI	TLI	RMSEA	[90% CI]	SRMR
Fourth Grade (*n* = 663)								
Nonhierarchical model	522.894	138	.000	.93	.91	.065	[.059, .071]	.087
Model A1, A2, B1, B2	257.377	127	.000	.98	.97	.039	[.032, .046]	.036
Fifth Grade (*n* = 387)								
Nonhierarchical model	420.240	138	.000	.91	.92	.073	[.065, .081]	.095
Model A1, A2, B1, B2	279.350	127	.000	.96	.94	.056	[.047, .065]	.045

The model had an acceptable fit to the data for both grade levels (see Table 8). In both fourth and fifth grades, reading fluency (βs = 0.20, 0.17, ps $\leq$ .001) and vocabulary (β = 0.46, $p \leq .001$) had direct effects on RC, respectively. Among the emotional variables, at both fourth and fifth grades, only hopelessness had a direct effect on RC (βs = -0.39, -.41 ps $\leq$ .001), independent from the effects of reading fluency and vocabulary.

4.3.2. Hierarchical Models of Direct and Indirect Effects of Achievement Emotions in Language Arts Lessons, Reading Fluency, and Vocabulary on Reading Comprehension

For each research question, examining the hypothesis of the hierarchical relationship, two models were examined, each represents a different theoretical perspective regarding the interplay between achievement emotions and academic achievements. All models were examined for each grade level separately. The first model was based on two hierarchical levels, at each level only emotions or linguistic components. For the first research question Model A1 examined the hypothesis of direct, indirect, and total effects of achievement emotions on RC, and the mediating role of reading fluency and vocabulary in these effects. For the second research question, Model B1 examined the hypothesis of the mediating role of achievement emotions in the effects of reading fluency and vocabulary on RC.

The second line of models was drawn on the perception of the interplay between achievement emotions, and that some emotions can enhance, decrease or maintain other emotions (Izard, 1977, 2013; Izard et al., 2000; Plutchik, 2001). For the first research question Model A2 examined whether next to the mediation role of reading fluency and vocabulary, the effects of achievement emotions on RC are also mediated by an emotion variable. For the second research question, Model B2 examined whether an emotion variable mediates the indirect effects of reading fluency and vocabulary on RC through other achievement emotions. Figure 3 (see p. 81) presents models A1, A2, B1, B2.

4.3.2.1. Direct and Indirect Effects of Achievements Emotions in Language Arts Lessons on RC through Mediation of Reading Fluency and Vocabulary

For Model A1, direct effects of emotions on RC were examined, and the mediating role of reading fluency and vocabulary. Model A2, was drawn on the perception of the interplay between achievement emotions and was based on the results of the non-hierarchical model, which indicated that from all the emotions only hopelessness had a direct effect on RC. Thus, Model A2 examined whether hopelessness also mediated the effects of the other achievement emotions on RC through reading fluency and vocabulary. Both models had matching very good fit to the data in both grade levels (see Table 8). In model A1 only hopelessness had a significant contribution to RC, while the other achievement emotions were not significant predictors. It was therefore decided to focus on Model A2 since the results provided a more comprehensive perspective, which included significant indirect effects of emotions through both reading fluency and vocabulary, and hopelessness.

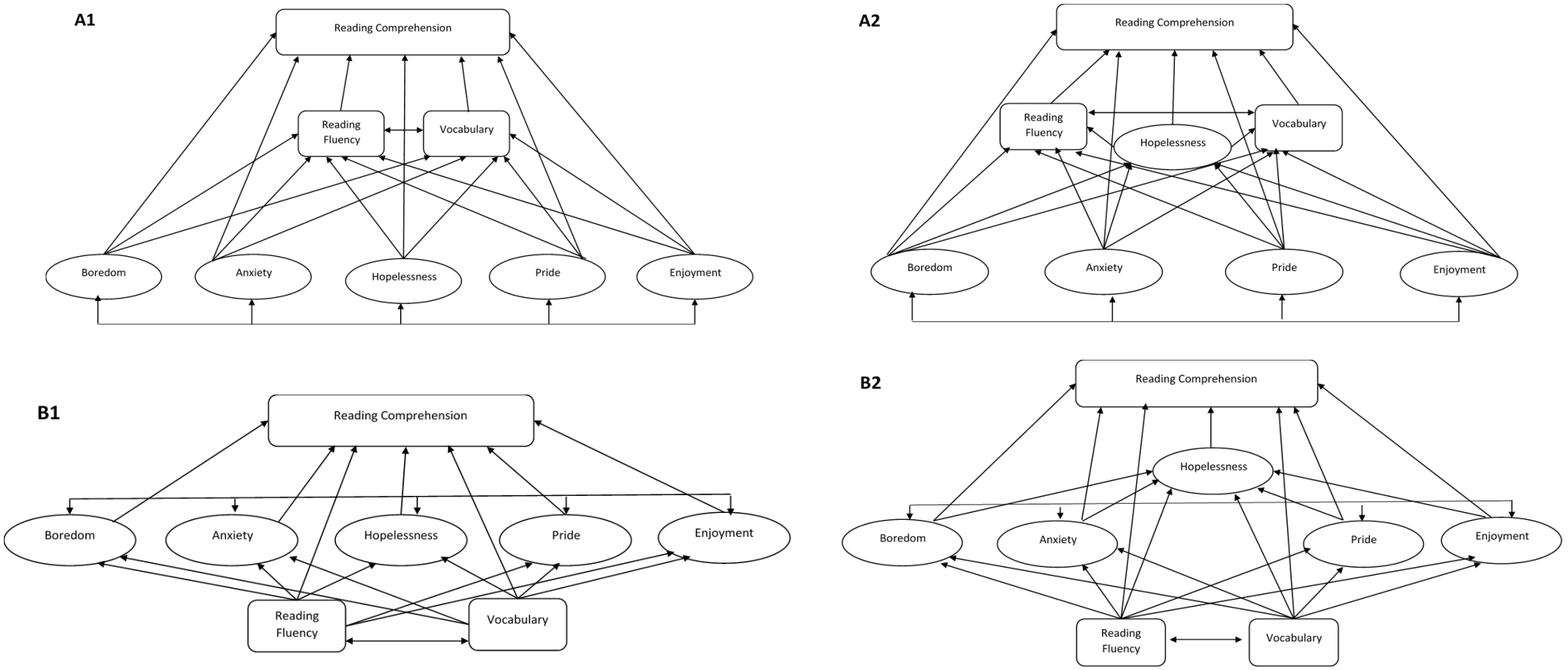


Figure 3. Models A1, A2, B1, B2. SEM analyses of hierarchical models of the interplay between achievement emotions, reading fluency, vocabulary, and RC. *Upper models:* Model A1 = classis mediation model of the direct and indirect effects of achievement emotions in language arts lessons on RC, mediated by reading fluency and vocabulary. Model A2 = model of direct and indirect effects of achievement emotions in language arts lessons mediated by reading fluency, vocabulary, and hopelessness. *Lower models:* Model B1 = classic mediation model of direct and indirect effects of reading fluency and vocabulary on RC, mediated by achievement emotions in language arts lessons. Model B2 = Model of direct and indirect effects of reading fluency and vocabulary on RC, mediated by achievement emotions in language arts lessons, and the mediating role of hopelessness in the effects of the other emotions. All models included latent variables for the achievement emotions, and observed variables for reading fluency, vocabulary, and RC.

Results of Model A2 are presented in Table 9 for fourth grade, and in Table 10 for fifth grade. In both grade levels, RC was significantly predicted by reading fluency (βs = 0.12, 014 ps ≤ .05), and vocabulary (βs = 0.38, 0.39 ps ≤ .001). Hopelessness had a significant contribution to RC, independent from that of reading fluency and vocabulary, at both fourth and fifth grade (βs = -0.43, -.041 ps ≤ .01, .001, respectively). Additionally, achievement emotions were also indirectly related to RC. At fourth grade anxiety had indirect effect through hopelessness and reading fluency (β = -.35, SE = 0.13, 95% CI, -.65 -.19, p ≤ .001), boredom had indirect effect through hopelessness (β = -.17, SE = 0.09, 95% CI, -.33 -.004, p ≤ .05), and hopelessness had indirect effect through reading fluency and vocabulary (β = -.31, SE = 0.06, 95% CI, -.44 -.21, p ≤ .01). At fifth grade, anxiety (β = -.35, SE = 0.10, 95% CI, -.61 -.19, p ≤ .001), and pride (β = .24, SE = 0.13, 95% CI, .03 .53, p ≤ .05) were indirectly related to RC through hopelessness, which was indirectly related to RC through reading fluency and vocabulary (β = -.23, SE = 0.07, 95% CI, -.37 -.10, p ≤ .01).

Examining the predictors of the mediators, at fourth grade, reading fluency was directly predicted by hopelessness (β = -0.71, p ≤ .05), anxiety (β = 0.34, p ≤ .001), and enjoyment (β = -0.31, p ≤ .001). Indirect effects were found by anxiety (β = -.40, SE = 0.14, 95% CI, -.74 -.23, p ≤ .001), and boredom (β = -.22, SE = 0.09, 95% CI, -.42 -.06, p ≤ .05), mediated by hopelessness. At fifth grade, reading fluency was directly predicted only by hopelessness (β = -0.36, p ≤ .05), and was indirectly affected by anxiety (β = -.14, SE = 0.08, 95% CI, -.37 -.03, p ≤ .01), boredom (β = -.13, SE = 0.10, 95% CI, -.40 -.01, p ≤ .05), and pride (β =.13, SE = 0.09, 95% CI, .02 .37, p ≤ .05) through hopelessness.

Regarding vocabulary, the results indicated that in both fourth and fifth grade, vocabulary was directly predicted only by hopelessness (βs = -0.58, -0.47 p ≤ .001, .05, respectively). At fourth grade, vocabulary was indirectly affected by anxiety (β = -.33, SE = 0.11, 95% CI, -.60 -.19, p ≤ .001) and boredom (β = -.18, SE = 0.08, 95% CI, -.36 -.04, p ≤ .05),

mediated by hopelessness. Similarly, at fifth grade vocabulary was also indirectly affected by anxiety (β = -.19, SE = 0.09, 95% CI, -.41 -.07, $p \leq .01$) and boredom (β = -.18, SE = 0.13, 95% CI, -.49 -.02, $p \leq .05$), but also by pride (β =.18, SE = 0.11, 95% CI, .02 .41, $p \leq .05$), through mediation of hopelessness.

Hopelessness was predicted by anxiety (β = 0.56, $p \leq .001$) and boredom (β = 0.31, $p \leq .05$) at fourth grade. Similarly, at fifth grade hopelessness was predicted by anxiety (β = 0.40, $p \leq .01$) and boredom (β = 0.37, $p \leq .05$), but also by pride (β = -0.37, $p \leq .05$).

Overall, the model explained 46% of the variance in RC in fourth grade. Standardized regression weights of the total effects (direct effect + indirect effects) of all variables are presented in Table 9. The results indicated that at this grade level, all achievement emotions in language arts lessons, except for boredom, had substantial contribution to RC, ranging from .23 to .73 in absolute value. This contribution was independent from the significant contribution of the linguistic components which were also affected by achievement emotions in language arts lessons. All achievement emotions except for anxiety had a significant total effect on reading fluency, ranging from .19 to .71 in absolute value. As to vocabulary, hopelessness and anxiety had total effects ranging between .28 to .58 in absolute value.

In fifth grade, the model accounted for 42% of the variance in RC. Standardized regression weights of the total effects are presented in Table 10. According to the results, next to the substantial contribution of reading fluency and vocabulary (ranging from .14 to .39 in absolute value), hopelessness and anxiety were also with significant contribution to RC, ranging from .33 to .64 in absolute value. Anxiety, hopelessness, and pride had significant total effects on reading fluency, ranging from .20 to .36 in absolute value, while vocabulary was affected only by hopelessness and anxiety (ranging from .40 to .47 in absolute value).

Table 9

*Summary of Model A2 of Direct, Indirect and Total Effects of Achievement Emotions in Language Arts Lessons on RC through Reading Fluency, Vocabulary, and Hopelessness at the Fourth Grade (*n = *663)*

Variables	Hopelessness			Reading fluency			Vocabulary			Reading Comprehension		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Reading fluency										**.12 (.05)**		**.12 (.05)**
Vocabulary										**.38 (.04)**		**.38 (.04)**
Hopelessness				**-.71 (.15)**		**-.71 (.15)**	**-.58 (.13)**		**-.58 (.13)**	**-.43 (.15)**	**.31 (.06)**	**-.73 (.14)**
Anxiety	**.56 (.09)**		**.56 (.09)**	**.34 (.14)**	**-.40 (.14)**	.-.06 (.07)	.05 (.13)	**-.33 (.11)**	**-.28 (.08)**	.12 (.12)	**-.35 (.13)**	**-.23 (.07)**
Boredom	**.31 (.11)**		**.31 (.11)**	.03 (.11)	**-.22 (.09)**	**-.19 (.09)**	.15 (.10)	**-.18 (.08)**	-.04 (.10_	.02 (.09)	**-.17 (.09)**	-.15 (.9)
Enjoyment	.12 (.14)		.12 (.14)	**-.31 (.14)**	-.09 (.10)	**-.40 (.11)**	-.09 (.13)	-.07 (.09)	-.16 (.13)	-.16 (.13)	-.16 (.10)	**-.32 (.12)**
Pride	-.15 (.12)		-.15 (.12)	.21 (.11)	.11 (.09)	**.32 (.10)**	.06 (.12)	.09 (.07)	.15 (.12)	.08 (.09)	.16 (.09)	**.24 (.10)**

Note. The results represent standardized regression weights; Standard errors are in parenthesis.

Results in bold are statistically significant at $p \leq .05$

Table 10

*Summary of Model A2 of Direct, Indirect and Total Effects of Achievement Emotions in Language Arts Lessons on RC through Reading Fluency, Vocabulary, and Hopelessness at the Fifth Grade (*n *= 387)*

Variables	Hopelessness			Reading fluency			Vocabulary			Reading Comprehension		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Reading fluency										**.14 (.06)**		**.14 (.06)**
Vocabulary										**.39 (.06)**		**.39 (.06)**
Hopelessness				**-.36 (.16)**		**-.36 (.16)**	**-.47 (.17)**		**-.47 (.17)**	**-.41 (.17)**	**-.23 (07)**	**-.64 (.18)**
Anxiety	**.40 (.11)**		**.40 (.11)**	-.06 (.13)	**-.14 (.08)**	**-.20 (.09)**	-.21 (.12)	**-.19 (.09)**	**-.40 (.09)**	.02 (12)	**-.35 (.10)**	**-.33 (.08)**
Boredom	**.37 (.17)**		**.37 (.17)**	.13 (.15)	**-.13 (.10)**	-.01 (.15)	.27 (.16)	**-.18 (.13)**	.09 (.14)	.11 (.18)	-.12 (.16)	-.01 (.14)
Enjoyment	.16 (.20)		.16 (.20)	-.13 (.18)	-.06 (.10)	-.18 (.17)	.04 (.18)	-.07 (.12)	-.03 (.17)	.11 (.17)	-.10 (.16)	.01 (.16)
Pride	**-.37 (.15)**		**-.37 (.15)**	-.18 (.15)	**.13 (.09)**	**.31 (.12)**	-.06 (.14)	**.18 (.11)**	.11 (.13)	-.23 (.13)	**.24 (.13)**	.01 (.12)

Note. The results represent standardized regression weights; Standard errors are in parenthesis.

Results in bold are statistically significant at $p \leq .05$

4.3.2.2. Direct and Indirect Effects of Reading Fluency and Vocabulary on RC through Mediation of Achievements Emotions in Language Arts Lessons.

For Model B1, direct effects of reading fluency and vocabulary on RC were examined, and the mediating effects of achievement emotions in language arts lessons. Model B2, was derived from the interplay between achievement emotions and was based on the results of the non-hierarchical model, which indicated that only hopelessness had a direct effect on RC. Thus, Model B2 examined whether hopelessness also mediated the effects of reading fluency and vocabulary on RC through the other achievement emotions. Both models fitted very well with the data in both grade levels (see Table 8). However, it was decided to focus on Model B2, as it allows a wider perspective, which included the significance of hopelessness in mediating not only the effects of reading fluency and vocabulary on RC but also the effects of the other achievement emotions.

Results of Model B2 are presented in Table 11 for fourth grade, and in Table 12 for fifth grade. At both fourth and fifth grades, RC was predicted by reading fluency (βs = 0.12, 014 $p \leq .05$) and vocabulary (βs = 0.38, 039 $p \leq .001$). Hopelessness had an independent contribution to RC at both grade levels (βs = -0.43, -.041 ps $\leq .01, .001$, respectively). Moreover, only at fourth- but not at fifth grade, reading fluency was also indirectly related to RC through hopelessness and pride (β = .13, SE = 0.04, 95% CI, .07 .22, $p \leq .001$). Vocabulary also had indirect effects on RC through hopelessness and pride (β = .12, SE = 0.03, 95% CI, .06 .19, $p \leq .001$) at fourth grade, and at fifth grade (β = .11, SE = 0.05, 95% CI, -.01 .13, $p \leq .01$). As to prediction of RC by achievement emotions, at fourth grade anxiety (β = -.12, SE = 0.11, 95% CI, -.48 -.10, $p \leq .001$) and boredom (β = -.11, SE = 0.06, 95% CI, -.25 -.02, $p \leq .05$) were indirectly related to RC through hopelessness. Similar results obtained at fifth grade for anxiety (β = -.12, SE = 0.09, 95% CI, -.36 -.01, $p \leq .05$) and

boredom (β = -.16, SE = 0.12, 95% CI, -.49 -.03, $p \leq .01$), but pride also had indirect effect on RC mediated by hopelessness (β = .13, SE = 0.10, 95% CI, .01 .37, $p \leq .05$).

Examining the prediction of the mediators, at fourth and fifth grade hopelessness was predicted by reading fluency (βs = -0.25, -0.11 ps $\leq .05$) and vocabulary (βs = -0.18, -0.20 $p \leq .001, .05$). At both grade levels anxiety (βs = 0.50, 0.30 ps $\leq .001, .05$) and boredom (βs = 0.26, 0.39 ps $\leq .05$) directly predicted hopelessness; only at fifth grade pride was also significant predictor of hopelessness (β = -0.31 $p \leq .05$). At fourth grade only vocabulary had indirect effect on hopelessness through anxiety and boredom (β = -0.17, SE = 0.04, 95% CI, -.27 -.10, $p \leq .001$). At fifth grade, reading fluency had indirect effect on hopelessness through pride (β = -.14, SE = 0.04, 95% CI, -.23 -.06, $p \leq .01$), and vocabulary had indirect effect on hopelessness through anxiety (β = -.14, SE = 0.06, 95% CI, -.27 -.02, $p \leq .05$).

In predicting the other achievement emotions, at both fourth and fifth-grade reading fluency predicted only the feeling of pride (βs = 0.10, .020 $p \leq .05, .001$, respectively). Vocabulary predicted pride (β = 0.10 $p \leq .05$), boredom (β = -0.10 $p \leq .05$), and anxiety (β = -0.29 $p \leq .001$) at fourth grade, but at fifth grade it only predicted anxiety (β = -0.35 $p \leq .001$). Enjoyment was the only emotion that was not significantly predicted by neither reading fluency nor vocabulary at both fourth and fifth grade.

Overall, the model explained 46% of the variance in RC in fourth grade, and 42% in fifth grade. Standardized regression weights of the total effects in fourth grade are presented in Table 11, and in fifth grade are presented in Table 12. The results indicated that at both grade levels only reading fluency, vocabulary and hopelessness had substantial contribution to RC, ranging from .19 to .50 in absolute value. Hopelessness, being a main predictor of RC, was significantly affected at both grade levels by reading fluency and vocabulary in a range between .31 to .36 in absolute value. Additionally, at both grade levels, anxiety and boredom

had a substantial contribution to hopelessness in a range between .26 to .50 in absolute value, while only in fifth-grade pride also had a significant contribution of .31 in absolute value.

Table 11

*Summary of Model B2 of Direct, Indirect and Total Effects of Reading Fluency and Vocabulary on RC through Achievement Emotions in Language Arts Lessons at the Fourth Grade (*n = *663)*

Variables	Pride			Enjoyment			Boredom			Anxiety			Hopelessness			RC		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Reading fluency	**.10 (.04)**		**.10 (.04)**	-.01 (.04)		-.01 (.04)	-.09 (.05)		-.09 (.05)	-.06 (.05)		-.06 (.05)	**-.25 (.04)**	-.06 (.04)	**-.31 (.04)**	**.12 (.05)**	**.13 (.04)**	**.25 (.03)**
Vocabulary	**.10 (.05)**		**.10 (.05)**	.05 (.05)		.05 (.05)	**-.10 (.05)**		**-.10 (.05)**	**-.29 (.06)**		**-.29 (.06)**	**-.18 (.05)**	**-.17 (.04)**	**-.36 (.04)**	**.38 (.04)**	**.12 (.03)**	**.49 (.03)**
Anxiety													**.50 (.09)**		**.50 (.09)**	.12 (.12)	**-.12 (.11)**	-.09 (.05)
Boredom													**.26 (.11)**		**.26 (.11)**	.02 (.09)	**-.11 (.06)**	-.09 (.07)
Enjoyment													-.01 (.13)		-.01 (.13)	-.16 (.11)	.002 (.06)	-.15 (.09)
Pride													-.05 (.11)		-.05 (.11)	.08 (.09)	.02 (.05)	.09 (.08)
Hopelessness																**-.43 (.15)**		**-.43 (.15)**

Note. The results represent standardized regression weights; Standard errors are in parenthesis.

Results in bold are statistically significant at $p \leq .05$

Table 12

*Summary of Model B2 of Direct, Indirect and Total Effects of Reading Fluency and Vocabulary on RC through Achievement Emotions in Language Arts Lessons at the Fifth Grade (*n = *387)*

Variables	Pride			Enjoyment			Boredom			Anxiety			Hopelessness			RC		
	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect	Direct effect	Indirect effect	Total effect
Reading fluency	**.20 (.06)**		**.20 (.06)**	.10 (.06)		.10 (.06)	-.11 (.06)		-.11 (.06)	-.15 (.07)		-.15 (.07)	**-.11 (.06)**	**-.14 (.04)**	**-.25 (.06)**	**.14 (.06)**	.05 (.04)	**.19 (.05)**
Vocabulary	.09 (.06)		.09 (.06)	.04 (.06)		.04 (.06)	-.03 (.06)		-.03 (.06)	**-.35 (.07)**		**-.35 (.07)**	**-.20 (.08)**	**-.14 (.06)**	**-.34 (.07)**	**.39 (.06)**	**.11 (.05)**	**.50 (.04)**
Anxiety													**.30 (.12)**		**.30 (.12)**	.02 (.12)	**-.12 (.09)**	-.11 (.08)
Boredom													**.39 (.16)**		**.39 (.16)**	.10 (.18)	**-.16 (.12)**	-.06 (.11)
Enjoyment													.13 (.19)		.13 (.19)	.11 (.17)	-.05 (.11)	.06 (.13)
Pride													**-.31 (.13)**		**-.31 (.13)**	-.23 (.13)	**.13 (.10)**	-.10 (.11)
Hopelessness																**-.41 (.17)**		**-.41 (.17)**

Note. The results represent standardized regression weights; Standard errors are in parenthesis.

Results in bold are statistically significant at $p \leq .05$

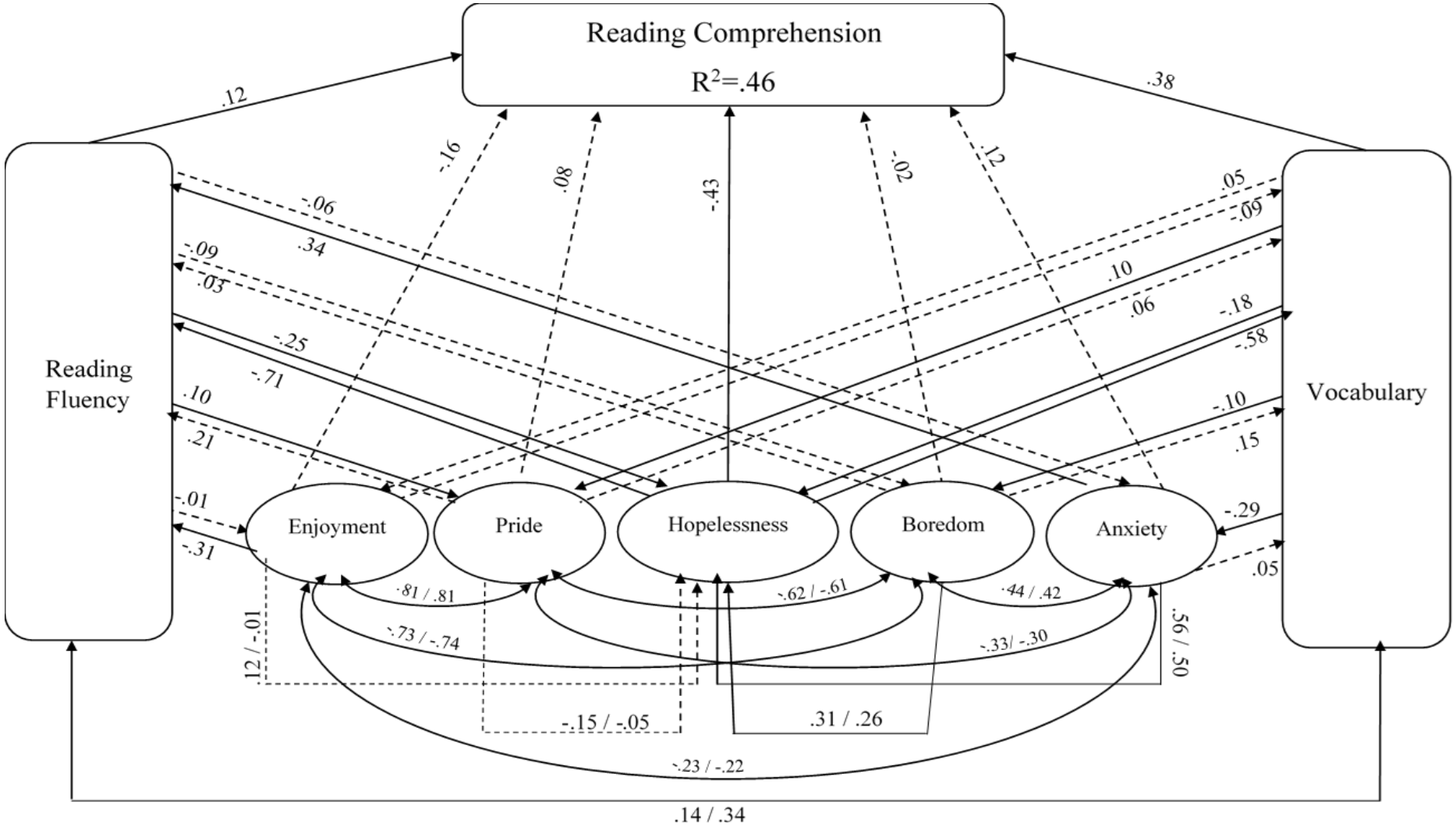


Figure 4. Standardized structural regression weights for the integrated direct and indirect effects model of achievement emotions in language arts lessons and reading comprehension at Fourth Grade. Solid line represents statistically significant paths at $p \leq .05$; Dashed lines represents paths that are not statistically significant. Two-sided arrows represent correlations, the values on the left side are from model A2, and at the values on the right side are from model B2.

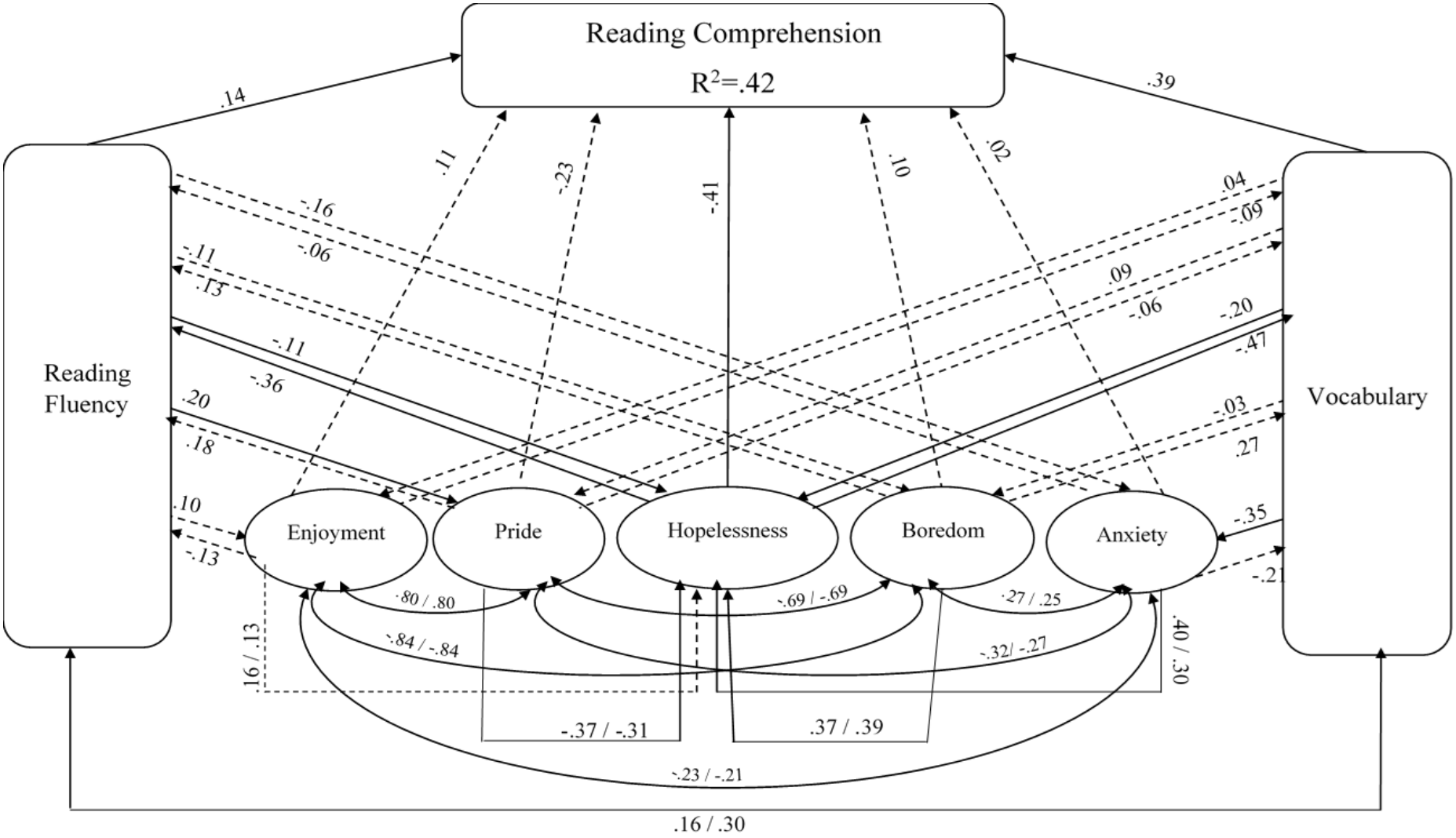


Figure 5. Standardized structural regression weights for the integrated direct and indirect effects model of achievement emotions in language arts lessons and reading comprehension at Fifth Grade. Solid line represents statistically significant paths at $p \leq .05$; Dashed lines represents paths that are not statistically significant. Two-sided arrows represent correlations, the values on the left side are from model A2, and at the values on the right side are from model B2.

4.4. Discussion

The results from the SEM analyses, testing the array of relationships between reading processes and emotions, support the proposed integrative model. Figure 4 and Figure 5 represent the integration of both Model A2 and Model B2 at fourth and fifth grade, respectively, thus illustrate the integrated model. The findings substantiate the significant role of achievement emotions in language arts lessons in the interplay with reading fluency, vocabulary, and RC. Achievement emotions were found with significant bidirectional relationships with reading fluency and vocabulary. The unique relationship between hopelessness and RC, independent from that of reading fluency and vocabulary, and its main role in mediating the relationships between other achievement emotions and RC, emphasizes the importance of emotions in reading processes.

In line with the control-value theory (Pekrun, 2006), the findings demonstrate the multiple relationships between academic achievement and achievement emotions and are mostly consistent with the direction of influence of negative and positive emotions on achievements. Except for enjoyment, which had a negative relation with RC only in fourth grade, hopelessness, anxiety, and boredom were negatively related to reading fluency, vocabulary knowledge, and RC, and pride was positively related to them. In the specific domain of RC, this model expands Kim's (2017, 2020a, 2020b) DIER model, as it shows the hierarchical interactive relationships between achievement emotions in language arts lessons and RC and its components; The study supports the view that RC is a multi-componential process (Conlon et al., 2006; Snow, 2002), underscores the significance of emotional aspects in the RC process, alongside linguistic and cognitive skills.

Consistent with the SVR, RC was significantly related to basic linguistic components, that are, reading fluency and vocabulary (Catts et al., 2006; Florit & Cain, 2011; Gough & Tunmer, 1986; Harlaar et al., 2010; Hoover & Gough, 1990; Johnston & Kirby, 2006; Joshi & Aaron, 2000; Kendeou et al., 2009; Savage, 2006). At both fourth and fifth grades, the

contribution of vocabulary knowledge to variance in RC was stronger than that of reading fluency. This finding is in line with the notion that at older ages after students acquired basic decoding skills, vocabulary has a stronger influence on RC development (Foorman et al., 2018; Verhoeven & Van Leeuwe, 2008; Yovanoff et al., 2005). These results are in line with Kim's (2020a) study of the direct and indirect model of RC. In her study, the effect of word reading at second grade on RC was higher (β = .64) than in fourth grade (β = .32).

In fourth grade, the core linguistic skills of reading fluency and vocabulary knowledge were also indirectly related to RC through their influence on students' emotions. The results advocated the notion that fluent reading and vocabulary knowledge can be considered as significant predictors of the developmental trajectory of achievement emotions in language arts lessons. Developing and holding high reading fluency proficiency and vocabulary knowledge has been shown to be related to lower levels of boredom, and anxiety, and to a higher feeling of pride in the language arts lessons. Interpreting these results according to the control-value theory (Pekrun, 2006), these core linguistics abilities generate a positive value of studying in language arts lessons and reduce students' worry about failing to succeed in them. In line with the bidirectional relationship between emotions and achievements, these emotions may also affect reading fluency and vocabulary, thus indirectly affect RC.

However, in this complex process, the meaning of feeling hopelessness stands out. Beyond being affected by reading fluency and vocabulary and influence RC through them, hopelessness also has a direct effect on RC and also mediates the effects of other achievement emotions. In line with the perspective on the multiple joint relationships between various emotions (Izard, 1977, 2013; Izard et al., 2000; Plutchik, 2001), the findings imply that being less anxious and bored and feeling prouder, may lead to a lower feeling of hopelessness in avoiding failure and foster a positive perception of capability. This might positively influence reading fluency and vocabulary, and therefore RC. Mainly reading fluency ability is significantly related to achievement emotions in language arts lessons at this age. The more

students feel capable in their learning in language arts lessons and consider succeeding in it as important, the more effort they invest in reading training, thus improving their fluent reading and supporting the development of RC skills. Overall, this bi-directional process, in which achievement emotions both influence and are affected by reading fluency and vocabulary, promotes successful RC performance. Yet, the independent contribution of hopelessness in language arts lessons to RC beyond reading fluency and vocabulary, underscore the substantial role of fostering a feeling of capability. Due to its motivational role, the findings may imply that the more capable students feel, the more adaptive is their behavior; feeling capable may assist in implementing learning strategies, and self-regulated learning processes, which are also important for RC.

The findings in fifth grade indicate the consistent contribution of reading fluency, vocabulary and feeling hopelessness to RC. However, this interplay contains some differences in comparison to that in fourth grade. Mainly, except for hopelessness, all other achievement emotions in language arts lessons did not hold a significant direct effect on reading fluency, vocabulary, and RC. Consequently, the indirect effect of anxiety, boredom, and pride on reading fluency and vocabulary, and eventually on RC is mediated only through hopelessness. These findings imply that students are driven by the feeling of capability; The influence of the variety of other achievement emotions on RC is channeled through hopelessness. Meaning, feeling pride, and less anxiety and boredom may support building a strong perception of capability, which in turn can promote better literacy proficiencies, which are reading fluency, vocabulary, and RC. Another important difference is that reading fluency had only a direct effect on RC, and that is despite the significant effect it had on pride and hopelessness. Meaning, the contribution of reading fluency to RC was independent of any emotion in language arts lessons. In contrast, vocabulary had an indirect effect on RC through anxiety and hopelessness. These findings may suggest that in fifth grade, as the significance of vocabulary in developing RC increases, its influence is more emotionally involved.

An exception in the interplay between achievement emotions in language arts lessons, reading fluency, vocabulary, and RC is the feeling of enjoyment. In fourth grade enjoyment in language arts lessons was negatively related to RC through reading fluency, while it was not related to any of the predictors of RC in fifth grade (i.e., reading fluency, vocabulary, and hopelessness). Interpreting these findings from an integrative perspective, it may be that at fourth-grade reading fluency as have been seen above, was more emotionally involved compared to fifth grade. Therefore, it can be that it is the very strong emotionality of reading fluency that may lead to the negative effect of enjoyment at this stage. Reading fluency in the Hebrew language in fourth grade is very challenging. This is the stage that most students abandon the transparent pointed Hebrew script, and are expected to progress to the opaque non-pointed version (Katzir et al., 2012; Shany et al., 2012), and that is while literacy demands increase as they involve in more complex reading activities (Chall, 1983). This stage of transition might be confusing, and it might take some time for students to get used to the new demands and expectancies. As an example, Sainio et al. (2019b) found negative changes in students' academic emotions during the transition to lower secondary school. This can also explain the positive effect of anxiety on reading fluency at this stage when students invest effort in reading to avoid failing in meeting the expectations. Therefore, while it seems that students focus their emotional resources on coping with the occurring changes and the increase in the level of study, the enjoyment they feel in language arts lessons might distract them from the very basic reading. It is possible that in fifth grade when students have adapted to the reading phase and learning requirements, their reading fluency is characterized by less emotional involvement. This assumption can be supported by the findings of the consistent significant relationship between achievement emotions in language arts lessons and vocabulary at both fourth and fifth grade, along with its stronger impact on RC, compared to reading fluency. Meaning, while the proficiency of reading fluency might go through

emotional challenge in the fourth-grade level transition point and stabled in fifth grade, the ongoing development of vocabulary through the years is in constant emotional involvement.

A second exception related to enjoyment in language arts lessons is that it was not predicted by either reading fluency or vocabulary at both grade levels. This means that students' enjoyment in language arts lessons does not necessarily depend on their reading fluency ability and vocabulary knowledge. In other words, while feelings of boredom, anxiety, hopelessness, and pride in language arts lessons are affected by students' level of literacy proficiencies, enjoyment occurs whether their abilities are low or high. This finding supports the concept suggested by Smith et al. (2012), that one does not have to be a strong reader to enjoy reading. This is also in line with the notion that different factors influence the feeling of learning enjoyment. For example, in their longitudinal research Hagenauer and Hascher (2014) asked students in the sixth and seventh grades to document important learning situations in class, and to decide whether they elicited or impeded learning enjoyment. Their finding indicated that a large proportion of students' enjoyment was accounted for their interest in the learning activities and the learning subjects, and that is more than their feeling of competence. Another line of work regarding learning enjoyment emphasized the contribution of teachers' characteristics to their students' enjoyment (Becker et al., 2014; Goetz t al., 2013; Frenzel et al., 2009). Westphal et al. (2018) examined the contribution of teachers' diagnostic skills to eighth-grade students' achievement emotions in the domains of math and literacy. They found that students' enjoyment in the literacy domain, but not in math, was positively related to teachers who had high diagnostic skills. That is, students experienced higher enjoyment in class when their teacher had better capabilities in detecting situations of struggle and respond accordingly. Mainhard et al. (2018) found that secondary school students' enjoyment in the classroom was significantly predicted by teachers' interpersonal relations with students. In longitudinal research among students between the fifth and tenth grades, Frenzel et al. (2018) found that teachers' enjoyment at the beginning of

the school year was related to students' perception of their teachers' enthusiasm, which was positively related to students' enjoyment. Overall, the finding of the independence of enjoyment in language arts lessons from students' linguistic skills encourage promoting enjoyable learning experiences for the whole class. Even though enjoyment in language arts lessons might not influence their literacy proficiencies, it is highly important in supporting their well-being and the joy of learning.

To conclude, the proposed integrated model of relationships between reading fluency, vocabulary knowledge, achievement emotions in language arts lessons, and RC support the notion that to promote students' ability to successfully comprehend written texts, both linguistics and emotional aspects are needed to be considered. Implications will be further discussed in the general discussion.

General Discussion

The current study represents a thorough comprehensive examination of the role of achievement emotions in reading performance in a large sample of Hebrew-speaking fourth and fifth-grade students. It provides valuable information that has the potential to inform the field of literacy in elementary school years in an important issue, that is often ignored in the research of reading.

The current study joins the series of studies examining emotions in education and expands the domain of emotions in reading processes. As expected, the findings support the substantial contribution of fundamental reading fluency and vocabulary to the process of RC (Catts et al., 2006; Florit & Cain, 2011; Gough & Tunmer, 1986; Harlaar et al., 2010; Hoover & Gough, 1990; Johnston & Kirby, 2006; Joshi & Aaron, 2000; Kendeou et al., 2009; Kim, 2017, 2020a, 2020b; Savage, 2006). These fundamental literacy skills were found related to achievement emotions in language arts lessons. The current study emphasizes the contribution of achievement emotions in language arts lessons to reading fluency.

The study has a significant contribution in providing new and extended information regarding the specific emotions that are directly and indirectly related to reading fluency and RC. Consistently, all the models that examined the relationships between achievement emotions in language arts lessons and reading fluency, vocabulary, and RC, emphasized the dominance of feeling hopelessness. This finding advocates the importance of feeling competent and indicates that a key motivational role lies in students' perception of capability. When students see themselves as having the ability to succeed in learning, and as able to avoid failure, their behaviors will be more effective, even in challenging situations; The very sense of ability provides them confidence. On the other hand, when students believe that they do not possess the means and ability to succeed and that they have no control or power to avoid failure, the result is destructive, as they are unlikely to even try to deal with both simple and challenging situations. That is, if the failure is predictable and inevitable, no cause will

motivate them to act. Students in the current study reported low levels of hopelessness, which is indicative of their perception of competence. In other words, students in the current study felt that they own the abilities to succeed in their learning in language arts lessons, and this perception was related to better reading fluency skills, vocabulary knowledge, and RC achievements.

An additional significant contribution of the current study stands in the examination of the joint impact of all emotions as an array of emotions, instead of the influence of each emotion separately. Emotions do not operate separately from one another, but as a system, and by integrating several emotions, a window to the beginning of understanding this complexity is open. This perception expands the focus that has been directed so far mainly at the feeling of anxiety and allows for a more holistic view of the wide range of emotions that learners bring to the educational settings. This approach has shown that most emotions were indirectly related to RC through the feeling of hopelessness. The relatively low levels of boredom and anxiety, next to the high level of pride, may have led students to feel more competent, as seen above in the low feeling of hopelessness. This finding holds significant educational implications, as it suggests that by encouraging students to value learning and succeeding in language arts lessons, they will most probably invest more effort in learning, which will further promote their feeling of competency. Meaning, provide students with knowledge and skills that will help them feel confident in their level of proficiency, will have better results if it is accompanied by advocating the value in learning.

Additionally, it should also be considered that every emotion is allegedly placed on an axis that moves between positive and negative aspects. That is, students who report low boredom are students who enjoy learning and see value in it; Students who report a high sense of pride indicate satisfaction with their accomplishments, compared with those who report a low sense of pride, which expresses disappointment with low performance. Moreover, the factors that trigger emotions can be different as well. For example, a high level of anxiety can

indicate a great fear of failure; a low level of anxiety can indicate on the one hand a sense of confidence in one's ability, and, on the other hand, a lack of interest. This important information can not necessarily be obtained by examining one single emotion, but by combining several emotions. If the feeling of anxiety is high, along with a low sense of hopelessness, and a high sense of pride, it can be assumed that this is a capable student, for whom success and maintaining the standards of his or her ability is important. On the other hand, if the feeling of anxiety is high, and alongside there is a high sense of hopelessness, and a low sense of pride, the image obtained is probably of a student with low ability, who is worried about his or her inability to succeed.

The findings from the current study hold significant educational implications, particularly considering the various individual differences between students in different grade levels, and between students with different reading skills. Since the results indicated differences in the level of experiencing each emotion, alongside changes in the patterns of relationships with reading skills, special attention should be given to self-regulation processes. The control-value theory (Pekrun, 2006) considers self-regulation as one of the main constructs in the relationship between emotions and achievements. According to the substantial body of theoretical and empirical work by Boekaerts (e.g., 1988, 1991, 1997), self-regulation in the classroom setting can be viewed as a balance between achieving learning goals and maintaining emotional well-being. In her model, students' appraisal of the situation directs them to the path in which they should act. For example, when students perform a task, which is perceived as congruent with their learning goals, they will increase their resources to accomplish them, thus trigger positive emotions and cognitive processes. However, when students are faced with a task that challenged or threatened their emotional well-being, negative emotions and cognitive processes will be evoked, directed at protecting them from the anticipating failure (Boekaerts & Corno, 2005). Considering the findings of the diverse emotionality that characterize students with different reading abilities, and at different grade

levels, students must be instructed and supported to effectively control and adapt to the changes of both learning demands and their emotional reaction to them. Meta-analysis of self-regulation interventions in the classroom found that the most effective intervention programs were those that integrated cognitive, metacognitive, and motivational strategies (Dignath et al., 2008). As Boekaerts (2011) have stated: *"Students will only engage meaningfully in learning when they feel secure and confident that the situation is controllable"* (p. 423). This recommendation calls for pedagogical changes, as it strongly suggests integrating both cognitive and emotional aspects in learning and developing reading skills.

In a wider perspective, considering the consistent rapid changes in the 21 century, the call is to focus on "learning to learn". Students should not necessarily be instructed in developing specific subject competence, but rather to develop *adaptive competence*, that is, the ability to use and utilize their accumulated knowledge and skills flexibly and productively in diverse situations (Boekaerts, 2010). This competency will allow them to cope effectively with the changes and developments in the learning processes, and with the emotional aspects innate in them.

Limitations and Future Research

The study holds several limitations that should be considered in interpreting the findings and planning future studies to further deepen the research in the field of achievement emotions in reading processes. At first, the study used only a self-report questionnaire to measure students' achievement emotions in language arts lessons. Though the questionnaire was adapted from a valid well-researched questionnaire, which allowed collecting data from a large sample of young students, self-report can be subject to response biases and not necessarily accurately reflect actual emotions. It is recommended that future studies will use additional methods aside from self-report questionnaires to gain a more accurate representation of students' emotions. These methods can include, using technological tools that read and analyze facial expressions, conducting observations on body language,

examining physiological responses, or considering also reports from parents or teachers. A second limitation related also to the emotions questionnaire that was used for the current study is related to the reduced number of items for the anxiety scale due to time limitations in the data collecting process. Anxiety is a complex emotional state, and two items might not be enough to evaluate it adequately. Future studies should expand this scale with additional items. A third limitation concerns addressing specifically achievement emotions in the classroom setting. Previous studies reported differences in the emotions experienced in additional educational settings such as taking an exam or doing homework (Lichtenfeld et al., 2012; Pekrun, 2011; Raccanello et al., 2013). Future studies should examine relations with achievement emotions experienced in those educational settings as well. Fourth, the study did not cover fully all achievement emotions in the classroom setting. As emotions operate as a system and are being affected by each other (Izard, 1977, 2013; Izard et al., 2000), it might be that by excluding some emotions, the full picture of emotions is missing. Future studies might consider expanding more the scope of emotions involves. Fifth, cultural aspects should also be considered. The participants in the current study were in the complex transition point between the two Hebrew scripts (Katzir et al., 2012; Share & Bar-On, 2018), which might have an additional impact on their emotions and their relationship to reading skills. Additionally, as was explained earlier, each year a large sample of fifth-grade students in Israel are examined in a national language test (i.e., the "Meitzav"). Throughout the school year, a substantial part of language arts lessons is explicitly directed at preparing students for this test. This may also have a significant influence on students' emotions. Therefore, future studies should investigate the association between reading skills and emotions among readers in different languages and orthographies. Specifically, future studies in Israel should examine whether there are differences in the emotions of students who are taking the national test compared with those of students who are not taking the test. A six limitation is related to the cross-sectional design that was used in the current study. Despite the significant information

and insights that result from this study, the causality aspect cannot be addressed. Future longitudinal studies are required to further in-depth the study in this field. Finally, the control value theory indicates multiple components that are involved in the relationships between achievements and emotions (Pekrun, 2006). Particularly, the findings from the current study point towards the significance of self-regulation processes. Future studies should include additional measures as self-regulation, to gain a comprehensive perspective on the impact of achievement emotions on the learning process in the domain of reading, which will be of great value to promote effective interventions.

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Appendix 1. Vocabulary Test

(Shany et al., 2017)

במבחן זה תמצאו מילים. מתחת לכל מילה מופיעים ארבעה ציורים. ליד כל ציור יש אות.

אתם צריכים לבחור את הציור שמתאר את המילה ולהקיף את האות שלידו בעיגול.

גם אם אתם לא בטוחים בתשובה, הקיפו את התשובה שנראית לכם הכי נכונה.

לא מורידים נקודות על טעויות.

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1. לְהִתרחץ

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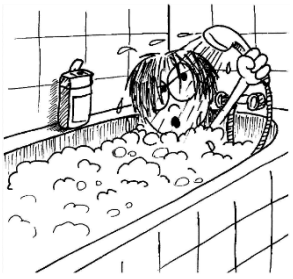

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2. ניצחון

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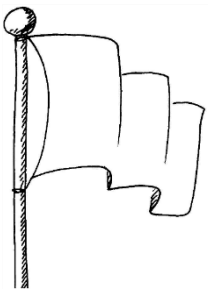

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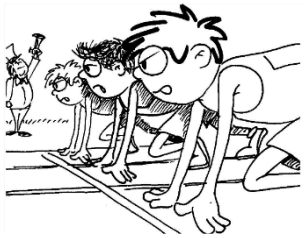

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3. אגודל

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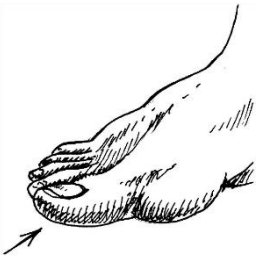

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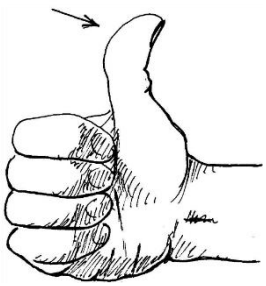

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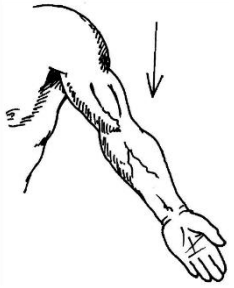

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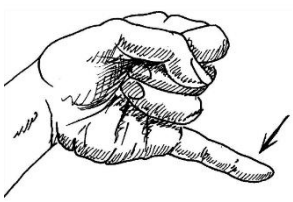

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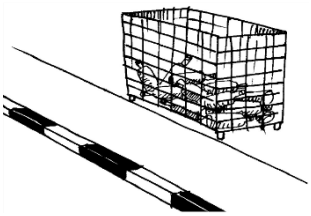

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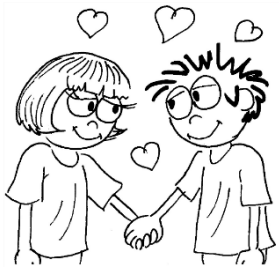

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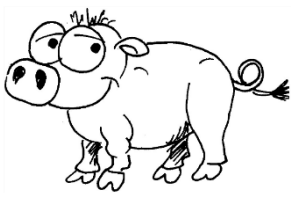

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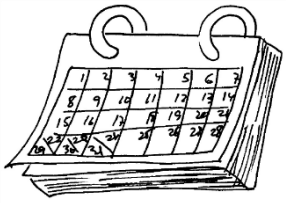

5. לִמזוֹג

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6. שָׁקוּף

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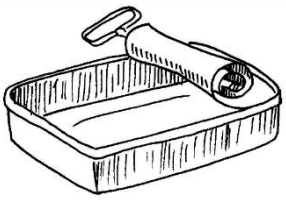

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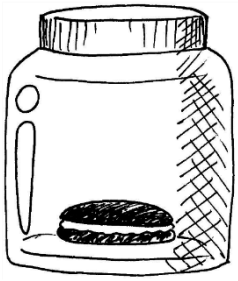

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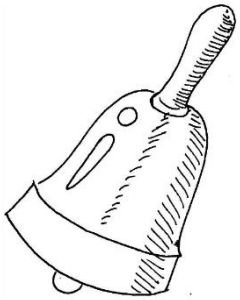

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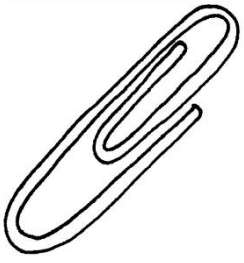

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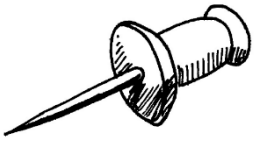

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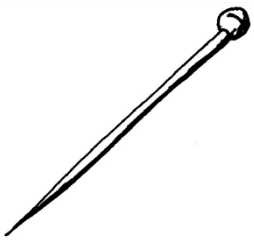

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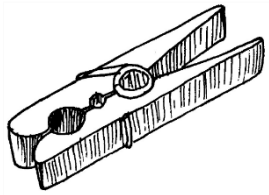

8. חריצות

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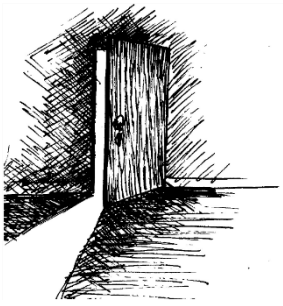

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9. טחינה

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10. דוֹמם

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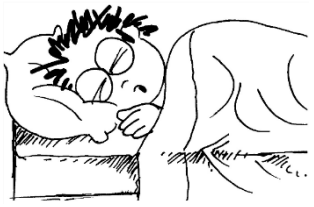

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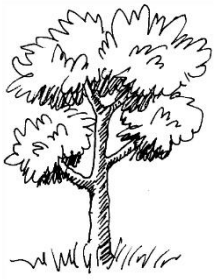

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11. שִׁוּוּי-משקל

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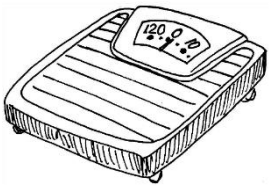

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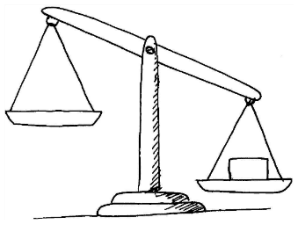

12. לִנזוף

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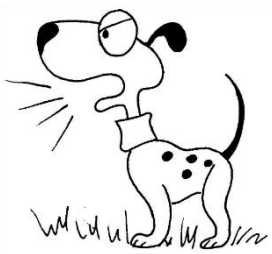

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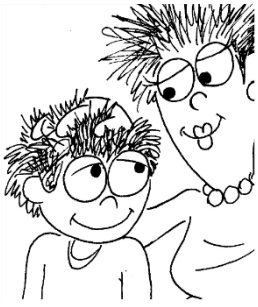

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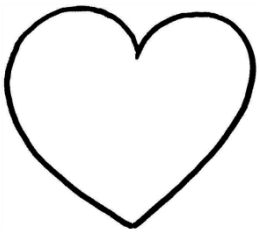

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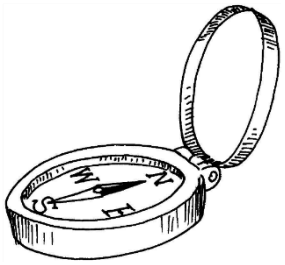

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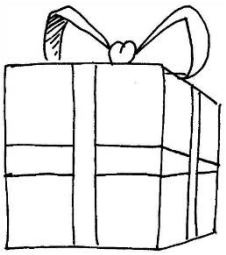

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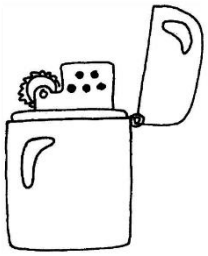

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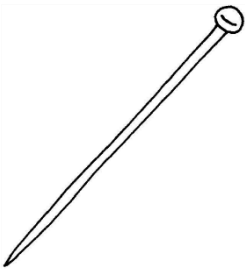

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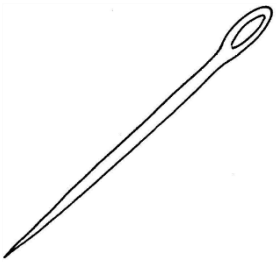

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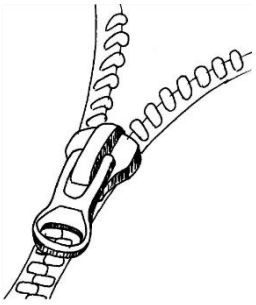

15. שִׁגעוֹן

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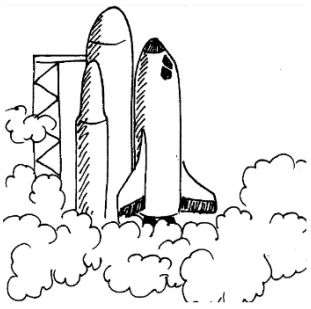

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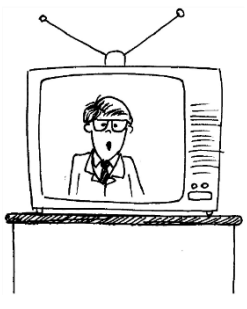

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16. כִּירַיִם

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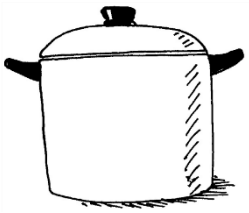

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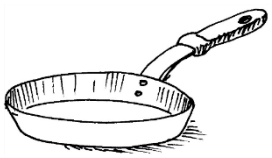

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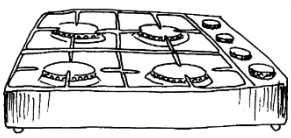

17. לַעדֹר

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18. כֶּרֶם

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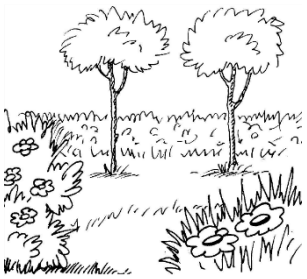

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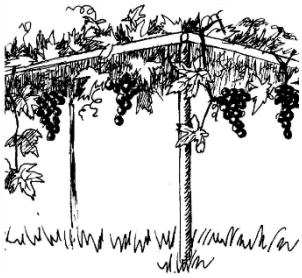

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19. שַׁי

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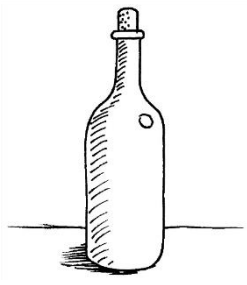

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20. פָּרסה

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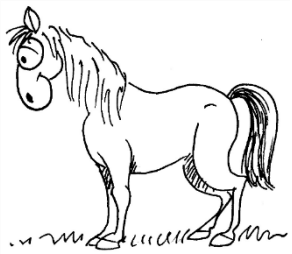

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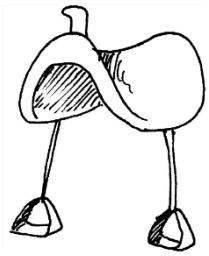

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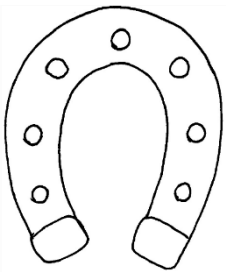

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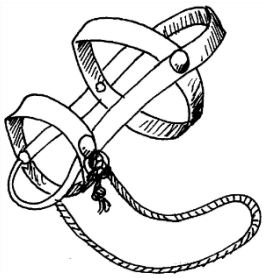

21. מתג

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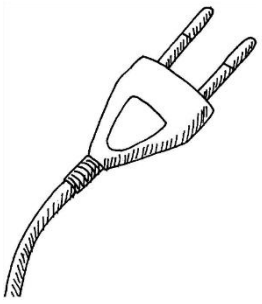

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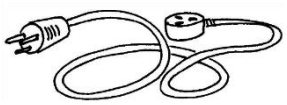

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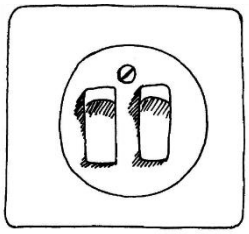

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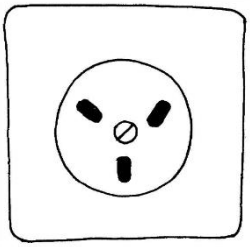

22. הַחמצה

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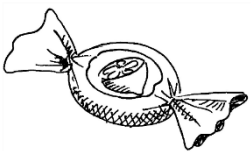

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23. סהר

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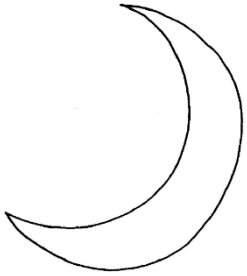

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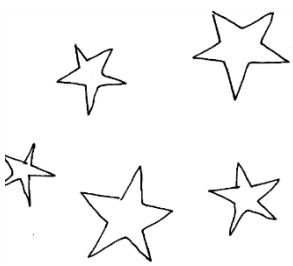

24. תֵּבֵל

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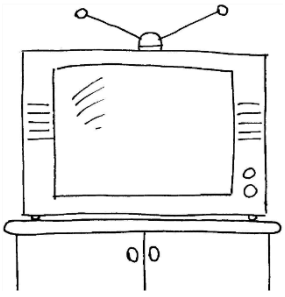

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25. אדנית

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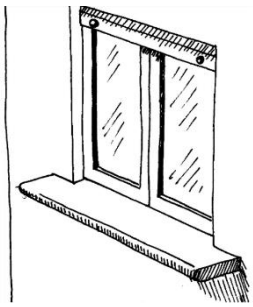
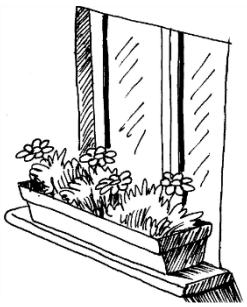


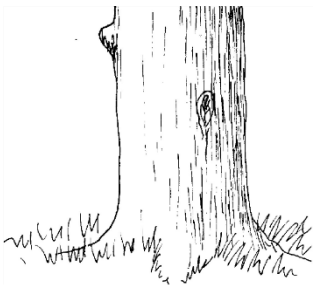
ג



ד

26. עב

א



ב

ג

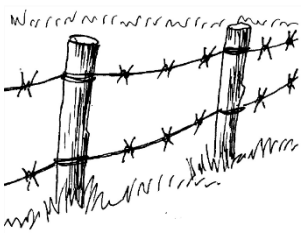
ד

27. גָּדר חיה

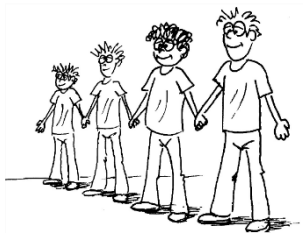
א

ב

ג

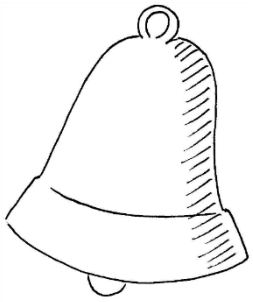


ד



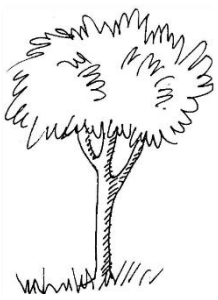
28. עדי

א



ב

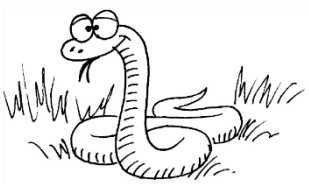
ג



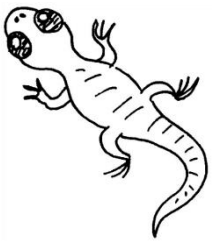
ד

29. שְׁממית

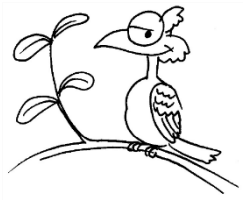
א



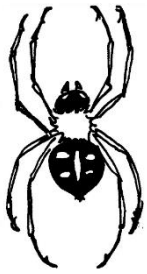
ב



ג



ד

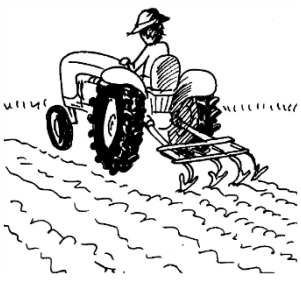


30. חריש

א

ב

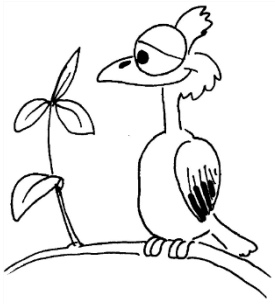
ג



ד

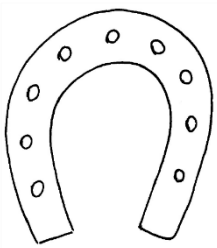
31. אלומה

א

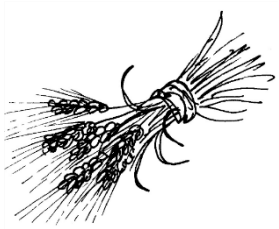


ב

ג

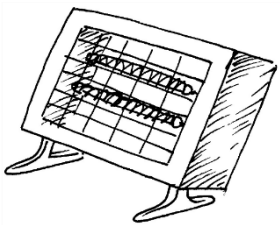


ד

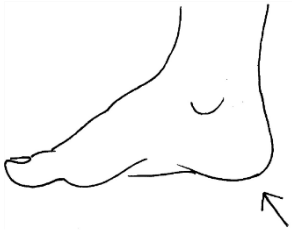


32. תנוּךְ

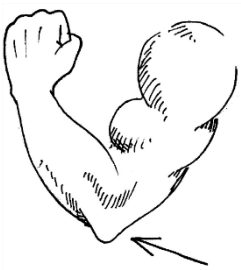
א



ב



ג



ד

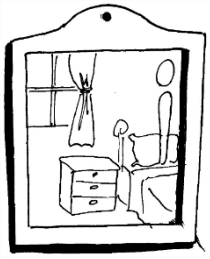
33. לְמרַק

א

ב

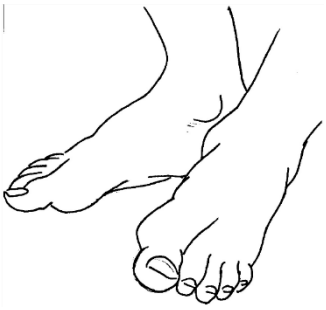
ג

ד



34. טפרים

א



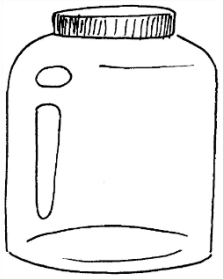
ב

ג

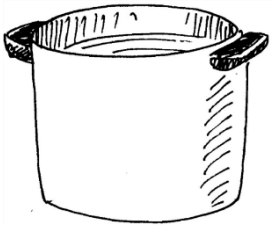
ד

35. גַבַּחַת

א



ב



ג

ד

Appendix 2. Hebrew version of TOWRE (Test of word reading efficiency)

(Katzir et al., 2012)

לוח A- לא מנוקד

1. אח
2. אז
3. שיר
4. תן
5. בו
6. או
7. לי
8. בא
9. תה
10. מי
11. רצת
12. כן
13. שק
14. נין
15. בין
16. סוס
17. חור
18. נפט
19. שבי
20. חיים
21. לוח
22. היא
23. חי
24. חישן
25. דיו
26. דרור
27. בנק
28. כרוב
29. שרוך
30. צריף
31. כוח
32. קלף
33. אף
34. רוץ
35. גיא
36. צייתן
37. אוהב
38. דיין
39. מידע
40. שיניים
41. באנו
42. חיוור
43. מלא
44. קיצר
45. מבחן
46. רצפה
47. הוכנס
48. בניין
49. רגליו
50. נברא
51. ראשי
52. צמד
53. על ידי
54. מצוי
55. יללה
56. חיישן
57. פירוש
58. בנוי
59. גמלים
60. על כן
61. בנאי
62. שמלות
63. פשטות
64. פטפוט
65. בלבל
66. פותחן
67. תבנית
68. מפחידים
69. פיקוח
70. פתרון
71. יפתחו
72. פרדס
73. קלקל
74. תקווה
75. שומע
76. קולב
77. מיותר
78. סיפורים
79. צמצמו
80. מסוכן
81. התאחדות
82. חיוני
83. התלבטויות
84. היעלמות
85. מאבטח
86. מבוכה
87. הסתודדות
88. גירעון
89. התבונן
90. הדגשה
91. התמודד
92. התחשבות
93. כביכול
94. חשבונאות
95. והביאותיך
96. התנכרות
97. צהבהב
98. קטנטונת
99. הלוואה
100. לאחרונה
101. קטנטנה
102. מבוישות
103. טובותיך
104. תלונותיהם

Appendix 3. Reading Comprehension Test "Literal and Homiletic Meaning" Test

(Shany & Blicher, 2017)

קִראו בעיון את כל הטקסט.

חוֹדוֹרוֹב* רקדנית ראשית

(*חוֹדוֹרוֹב היה שוער מהולל של נבחרת ישראל בכדורגל)

ישבתי בכיתה, והמורה דיברה ודיברה. לאט נָדְדוּ המחשבות שלי למקום אחר. נזכרתי בחנות דברי הספורט שברחוב אַלֶנְבִּי. עמדתי שם מול הראי ומדדתי את נעלי הכדורגל. זה היה אחד הימים המאושרים בחיי: לְרַגְלַי נעלי כדורגל אֲמִתִּיוֹת, מַשְׁאַת נַפְשִׁי.

המורה המשיכה לדבר ולדבר, ואני נָדַדְתִּי בְּהִרְהוּרַי למגרש הכדורגל בשכונה. עליתי למגרש, ולְרַגְלַי נעלי הכדורגל החדשות. חצי שעה לאחר שהמשחק החל, נבעט כדור חזק לעבר השער. נעלי הכדורגל החדשות הזניקו אותי מעלה-מעלה לעבר הכדור. הושטתי את ידיי קדימה, התגלגלתי על העפר והכדור בידיי. חבריי לקבוצה התקבצו סביבי נפעמים. קוֹבִּי, ראש קבוצתנו פנה אליי ואמר: "חוֹדוֹרוֹב!" זו הייתה המחמאה הגדולה ביותר שקיבלתי אי-פעם. ראש הקבוצה הכתיר אותי בתואר " חוֹדוֹרוֹב", כאילו אני מְשֻׁתַּוֶּה ליעקב חוֹדוֹרוֹב, השוער הלאומי המהולל של נבחרת ישראל.

ליבי הָלַם בחוזקה. הנחתי את הכדור ברחבת השער ובעטתי במלוא כוחי. הכדור הגיע היישר אל ראשו של קוֹבִּי, וקוֹבִּי נגח אותו בחוזקה פנימה... קוֹבִּי רץ אליי, שואג במלוא ריאותיו: "גול!" קורן מאושר חיבק אותי: "אין כמוך, חוֹדוֹרוֹב".

בעודי מִתְרַפֵּק על הזיכרון המתוק, נשמע בכיתה קולה של המורה לריקוד: "רציתי להודיע שבשבוע הבא יתחיל חוג ריקוד. באתי לדעת מי מבנות הכיתה מעוניינת להצטרף לחוג". איני יודע מה קרה לי, אבל שלא כהרגלי התפרצתי: "למה רק בנות?" המורה לריקוד הֶאֱדִימָה ושאלה בבוז: "האם יש בכיתה זו בנים שרוצים להצטרף לחוג לריקוד?" הייתי נבוך. היה קשה להתעלם מצליל הלעג שליווה את דבריה.

אני לא יודע מאין אָזַרְתִּי אומץ להרים את ידי. התבוננתי סביבי וראיתי שרק ידי מונפת. ניגשתי

אל המורה לריקוד והיא הבהירה לי שהיא מלמדת ריקוד ברציפות מאז קום המדינה ואף פעם לא ביקש בן להצטרף לחוג לריקוד, ובכלל – שבנים מעדיפים כדורגל. וגם אמרה: "בשיעורי הריקוד אני משלבת גם בלט, ואתה תצטרך לנעול נעלי ריקוד כמו כל הבנות". ניסיונותיה של המורה לריקוד לא צלחו. הצטרפתי לחוג לריקוד.

המורה לריקוד הייתה מורה טובה. למדתי ממנה שאפשר לבטא רעיונות ורגשות באמצעות תנועות גוף. פעם אחת קיבלנו שיעורי בית להכין קטע תנועה. בסוף הקטע שלי כל הבנות מחאו לי כף בהתלהבות, והמורה לריקוד ניגשה אליי וחיבקה אותי.

לשיעור הבא הציעה לי המורה לבחור נושא מֻחַיַי, ואז עלה בי מיד הרעיון: 'נעלי הכדורגל החדשות'. במשך משחק הכדורגל שהתקיים באותו שבוע, חשבתי על קטע הריקוד שלי, ניסיתי למצוא את הדרך לבטא בתנועה את שִׂמְחָתִי וגאוותי על נעלי הכדורגל החדשות שלי. לא הייתי מרוכז. לפתע התקרב אל השער שחקן הקבוצה היריבה. מול עיניי היה הכדור שברגליו. "זה הוא או אתה" אמרתי לעצמי וזינקתי לרגליו. הכדור היה בְּיָדַי. הצלתי שער בטוח. חבריי לקבוצה התקבצו סביבי, וקוֹבִּי נתן לי מחמאה שאפילו חודורוב לא זכה בה מעולם: "חוֹדוֹרוֹב רקדנית ראשית".

שַׁבְתִּי לְבֵיתִי, צחצחתי את נעלי הכדורגל והנחתי אותן במקומן, ליד נעלי הריקוד החדשות שלי.

מעובד על פי: משה קרון, עיתון עיניים, גיליון מס' 175 עמ' 46-48.

לפניכם שאלות.

בחרו לכל אחת מהן את התשובה הנכונה.

1. בשורות 2-3 כתוב: "זה היה אחד הימים המאושרים בחיי".

למה זה היה אחד הימים המאושרים בחיי הילד?

א. כי הוא עצר כדור במשחק כדורגל.

ב. כי קנו לו נעלי כדורגל.

ג. כי קיבלו אותו לחוג לריקוד.

ד. כי הוא התחיל לשחק כדורגל.

2. לפי הטקסט, מה למד הילד בשיעורי הריקוד?

א. שריקוד עוזר לשחק כדורגל.

ב. שריקוד גורם להרגשת קלילות.

ג. שבנים יכולים לרקוד טוב יותר מבנות.

ד. שאפשר להביע רגשות בעזרת ריקוד.

3. בשורות 7-8 כתוב: "קוֹבִי, ראש קבוצתנו, פנה אליי ואמר: "חוֹדוֹרוֹב!" זו הייתה המחמאה הגדולה ביותר שקיבלתי אי פעם".

מדוע חשב הילד שזו המחמאה הגדולה ביותר שקיבל אי פעם?

א. כי קוֹבִי, ראש הקבוצה, הוא שנתן לו את המחמאה.

ב. כי לא היה שוער יותר טוב מיעקב חוֹדוֹרוֹב.

ג. כי הוא הצליח לתפוס את הכדור שנבעט לעבר השער.

ד. כי חבריו לקבוצה התקבצו סביבו נדהמים.

4. באיזה שלב בסיפור אפשר להבין שהמורה לריקוד שינתה את דעתה לגבי השתתפות של בנים בחוג?

א. אחרי שהילד הסכים לנעול נעלי ריקוד כמו בנות.

ב. אחרי שהילד הבין שהמורה יכולה ללמד אותו לבטא רגשות באמצעות תנועה.

ג. אחרי שהילד הציג לפני המורה ולפני כל הבנות את קטע התנועה שהכין.

ד. אחרי שהילד בחר להכין קטע תנועה על נעלי הכדורגל החדשות שלו.

5. בשורות 14-16 כתוב: "...נשמע בכיתה קולה של המורה לריקוד:...'באתי לדעת מי מבנות הכיתה מעוניינת להצטרף לחוג לריקוד'. איני יודע מה קרה לי, אבל שלא כְּהֶרְגֵּלִי התפרצתי: 'למה רק בנות?'"

לפי הטקסט, מה הרגישה המורה לריקוד בעקבות התפרצותו של הילד?

א. היא הייתה מלאת גַּאֲוָה.

ב. היא התלהבה.

ג. היא התפעלה.

ד. היא הייתה מופתעת.

6. כשהילד ביקש להצטרף לחוג לריקוד, המורה לריקוד הגיבה בבוז (שורה 17).

כיצד השפיעה על הילד תגובתה של המורה לריקוד?

א. הוא הסתגר בתוך עצמו ולא הגיב.

ב. הוא היה מאוכזב, והחליט להמשיך לשחק כדורגל.

ג. הוא הופתע, ורצה לחשוב שוב על בקשתו.

ד. הוא היה נבוך אבל נחוש ברצונו להצטרף לחוג.

7. בשורה 34 כתוב: "שַׁבְתִּי לְבֵיתִי, צחצחתי את נעלי הכדורגל והנחתי אותן במקומן, ליד נעלי הריקוד החדשות שלי".

מה ביטא הילד במעשה זה?

א. שאפשר להיות שחקן כדורגל מצטיין וגם לאהוב לרקוד.

ב. שהוא ילד מסודר, והוא שם את הנעליים שלו במקום המתאים.

ג. שהוא חושב שמי שמצטיין בכדורגל מצטיין גם בריקוד.

ד. שכדורגל חשוב לו יותר מריקוד, לכן הוא צחצח את נעלי הכדורגל שלו.

8. דנה בת ה-9 רוצה להיות כבאית כשתהיה גדולה. אימא שלה הבטיחה לקנות לה ליום הולדתה מכונית צעצוע לכיבוי אש.

במה דומה הסיפור על דנה ואימא שלה לסיפור על הילד שהשתתף בחוג לריקוד?

א. המבוגרים אמרו גם לדנה וגם לילד שבסיפור שמה שמעניין אותם לא מתאים להם.

ב. גם דנה וגם הילד בסיפור משחקים באותם המשחקים.

ג. גם דנה וגם הילד בסיפור חושבים שבנים ובנות יכולים לעשות את אותם דברים.

ד. גם דנה וגם הילד בסיפור הגשימו את החלומות שלהם.

9. בשורות 33-32 כתוב: "וקובי נתן לי מחמאה שאפילו חודורוב לא זכה בה מעולם: 'חודורוב רקדנית ראשית'".

איך הרגיש הילד כששמע את המחמאה שנתן לו קובי?

א. הוא שמח שקובי חושב שהוא כדורגלן טוב כמו חודורוב.

ב. הוא התרגש שקובי גאה בו על היותו גם כדורגלן טוב וגם רקדן טוב.

ג. הוא התבייש שקובי חושב שהוא משחק כדורגל כמו רקדן.

ד. הוא נעלב שקובי מזכיר את היותו רקדן בזמן משחק הכדורגל.

10. קראו את הקטע הבא, וענו על השאלה שאחריו:

לפני עשרים שנים פנתה אישה בשם אַלִיס מִילֶר לבית משפט בישראל, בגלל שלא אישרו לה להשתתף במיונים לקורס טַיִס. נשיא המדינה באותה תקופה, עֶזֶר וַיצְמַן אמר לה: "את ראית פעם גֶבֶר סורג גרביים? ראית פעם אישה מנתחת בבית חולים או מנצחת על תזמורת? נשים לא מסוגלות לעמוד בַּלְחָצים הדרושים מְטַיְסִים". בית המשפט פָּסַק לטובתה, ומאז נשים יכולות להתקבל לקורס טַיִס.

גם הילד בסיפור "חודורוב רקדנית ראשית", וגם אַלִיס מִילֶר הרגישו <u>בסופו של דבר</u>:

א. כעס על כך שלא מאפשרים לבנים ולבנות לעסוק בתחומים שמעניינים אותם.

ב. שִׂמְחָה על כך שמרשים לנשים להשתתף בקורס טיס.

ג. עצב על כך שלא נותנים לבנים להשתתף בשעורי ריקוד.

ד. גַאֲוָה על שהצליחו לעשות משהו שהם רוצים למרות שלא כולם מסכימים איתם.

קִראו בעיון את כל הטקסט.

קַבָּלַת הָאַחֵר

מְקוּבָּל לחשוֹב שֶׁרק אצל בְּנֵי האדם קַיֶּמֶת חֶמְלָה וקַבָּלה של 'השונֶה', של מי שׁיוצֵא דופֶן בַּחֶבְרָה. נעים לנו לחשוב שבַּעלֵי החיים פועלים בעיקר מתוך דְּחָפים כמו רעָב או מלחמה על שטח מִחְיָיה, ואילו אנחנו נְבוֹנים ופוֹעלים מִתוך רֶגֶשׁ, אהבה וְעֶזרה הֲדָדית. אֲבל מִתבָּרֵר שהמחשבה הזאת אֵינה מבוּסֶסת על עוּבדות. חוקְרֵי בַּעלֵי חיים ואנשים שעובדים בְּפינות חַי מְסַפְּרִים על גִילוּיים מַפְתִיעים של רוך וְחֶמְלָה בין בַּעלֵי חיים.

למשל, בעל חיים שיוצא דופֶן מִבְּנֵי מִינוּ בִּצְבָעָיו וּבְצוּרָתוֹ, חי בַּדֶּרך כלל עם בְּנֵי מינו כְּאֶחד מֵהם. חֲבֵרָיו לא דוחים אותו, והוא אֵינו זוכֶה לְיחס מְיוּחד מפני שהוא שׁוֹנֶה. אפשר לראות זאת אֵצל הָאֲרָיוֹת, שבעיניהם אַרְיֵה לָבָן הוא אַרְיֵה לְכֹל דָּבָר, וְלמרות הֱיוֹתוֹ יוצֵא דופֶן ושׁוֹנֶה מִכולם, ללהקת הָאֲרָיוֹת אֵין שום בעיה איתו.

דוגמה נוספת היא אימוּץ גורים של בְּנֵי מין אחר. אצל בני האדם תופעת האימוץ מְקוּבָּלֶת מאוד. מאז ומעולם אימצו בני האדם לא רק גּוּרֵי אדם, אלא גם גורים של חיות אחֵרות. אבל מתברר שהאימוץ אינו נַחלַת האדם בלבד, אֶלָּא הוא תופעה הקיימת אצל בעלי חיים רבִּים. בטֶבַע מרבית אירועי האימוץ מתרחשים בין בוגר לצעיר, כנראה שמשהו בַּמַּרְאֶה ובהתנהגות של גורים מפעיל יֵצֶר טיפולי בבוגרים, גם אם הם אֵינָם בני מינם.

דוגמה לאימוץ היא הסיפור על יְעֶלָה בת 3 ימים שהגיעה לפינת החי בקיבוץ. הָאַחְרָאִית על פינת החי הֶעניקה לְיְעֶלָה טיפול בְּבֵיתָהּ. היא האכילה אותה מְבַּקְבּוּק ודאגה לה לחימום. בבית הסתובבו גם כַּלְבָּה וגוריה הצעירים. כשראתה היְעֶלָה אֶת הגורים יונקים מֵאִמָּם, היא לא היססה וניסתה לְהִצְטָרֵף לסעודה. בתחילה דָּחתה הכלבה אֶת היְעֶלָה שֶׁכֵּן אופן הַיְנִיקָה שלה היה שונה מאוד מאופן הַיְנִיקָה של הכלבלבים. לאחר כמה ניסיונות התקרבות של היְעֶלָה, הכלבה הניחה לה לִינוֹק עם גּוּרֶיהָ. כשגדלו הגורים עברה כל משפחת הכלבים לחיות במלונה בחוץ, ואיתם עברה גם היְעֶלָה. היה נראה שֶׁבְּעֵינֵי הכלבים, היְעֶלָה היא אחת מהם.

בעלי חיים מאמצים לא רק גורים של חיות אחרות, לפעמים הם מאמצים אפילו ילדים. ידועים מקרים של זְאֵבִים, שנתקלו בילדים שלא היה מי שיטפל בהם. הזְאֵבִים טיפלו בילדים במסירות ובאהבה, חלקו איתם אֶת מזונם, הֵגֵנוּ עליהם והפכו אותם לְחֵלֶק מהמשפחה. ברוב המקרים, כשנודע הַדָּבָר לבְּנֵי האדם, הם הפרידו את הילד בכוח מ'המשפחה המאמצת' שלו וניסו 'להציל' אותו ולהשיבו לעולם האנושי. כמעט תמיד הסתיים ניסיון ההצלה הזה בְּכִאֵב רב לילד.

שנים רבות היה מקובל לחשוב שרק אצל בְּנֵי האדם קיימים חֶמְלָה וְקַבָּלָה של 'השׁוֹנֶה', אבל הסיפורים על התנהגותם של בעלי החיים מלמדים אותנו שגם אצל בעלי החיים יש רוֹך וחֶמְלָה, גם אצלם יש קבלה של מי ששׁוֹנֶה מהם, וגם הם מאמצים גורים שאין להם אימא, אפילו אם אֵינָם בְּנֵי מינם.

מעובד מתוך: טל ברטוב, עיתון עיניים, גיליון מס' 175 עמ' 45-43.

לפניכם שאלות.

בחרו לכל אחת מהן את התשובה הנכונה.

1. בשורות 7-9 מסופר על אַרְיֵה לָבָן. **איך מתייחסים האַרְיוֹת בלהקה לאַרְיֵה הלָבָן?**

א. הם דוחים את האַרְיֵה הלָבָן.

ב. הם מתייחסים אל האַרְיֵה הלָבָן כאל אַרְיֵה מיוחד.

ג. הם מתייחסים לאַרְיֵה הלָבָן כמו לְאַרְיוֹת אחרים.

ד. הם מתייחסים לאַרְיֵה הלָבָן בחשדנות.

2. מדוע בתחילה הכלבה דָּחתה את היְעֵלָה (שורה 18)?

א. כי בתחילה לא היה לכלבה מספיק חלב גם לגורים שלה וגם ליְעֵלָה.

ב. כי הכלבה לא הייתה רגילה לצורת היניקה של היְעֵלָה.

ג. כי הגורים של הכלבה ניסו לגרש את היְעֵלָה.

ד. כי בתחילה הכלבה לא רצתה שהיְעֵלָה תגור במלונה.

3. בסיפור על היְעֵלָה והכלבים, מדוע בסופו של דָּבָר משפחת הכלבים קיבלה את היְעֵלָה כאחת מהם?

א. כי היְעֵלָה גָּדְלָה עם גורי הכלבים וינקה מהכלבה.

ב. כי גורי הכלבים גָּדְלוּ והגיעו לגודל היְעֵלָה.

ג. כי היְעֵלָה התנהגה כמו הכלבים והתחילה לנבוח.

ד. כי הן גורי הכלבים והן היְעֵלָה הפסיקו לינוק.

4. בשורות 13-14 כתוב: "כנראה שמשהו בַּמַּרְאֶה ובהתנהגות של גורים מפעיל יֵצֶר טיפולי בבוגרים, גם אם הם אֵינָם בני מינם."

מה מלמד המשפט על הָרְגָּשׁוֹת של בעלי החיים הבוגרים?

א. הבוגרים מרגישים דְּאָגָה כלפי הגורים.

ב. הבוגרים מרגישים אכזבה מהגורים.

ג. הבוגרים מרגישים תִּסְכּוּל מטיפול בגורים.

ד. הבוגרים מרגישים גַּאֲוָה כלפי הגורים.

5. בשורה 26 כתוב: "כמעט תמיד הסתיים ניסיון ההצלה הזה בִּכְאֵב רב לילד".

למה הילד הרגיש כְּאֵב?

א. כי הוא פחד מבני אדם.

ב. כי הוא הִתְגַּעְגֵּעַ לחיים עם בני האדם.

ג. כי הוא חשש שלא יקבלו אותו בעולם האנושי.

ד. כי הוא הִתְגַּעְגֵּעַ למשפחת הַזְּאֵבִים שאימצה אותו.

6. בתחילת השנה הגיע לכיתה קוֹסְטְיָה, עולה חדש מרוּסְיָה שלא ידע עברית ודיבר והבין רק רוסית.

יָאִיר אמר: "נשתף את קוֹסְטְיָה במשחקים שלנו וכך נעזור לו ללמוד עברית".

שַׁי אמר: "נשתף את קוֹסְטְיָה במשחקים שלנו רק אחרי שילמד עברית".

יָעֵל אמרה: "נאמר לקוֹסְטְיָה שיוכל לשחק אתנו רק אם יבוא עם מבוגר דובר רוּסִית".

דָּנָה אמרה: "נבקש מהמורה להעביר את קוֹסְטְיָה לכיתה שיש בה עוד ילדים דוברי רוּסִית".

מי מהילדים התייחס לקוֹסְטְיָה בְּצורה הדומה להתייחסות הכלבלבים לְיִעֵלָה?

א. יָאִיר

ב. שַׁי

ג. יָעֵל

ד. דָּנָה

7. בַּרְבּוּר שחור שוחה באגם יחד עם להקת בַּרְבּוּרים לְבָנִים.

על בסיס המידע הנתון בטקסט, התנהגותו של הבַּרְבּוּר השחור תעיד שהוא -

א. מרגיש שונָה ודחוי.

ב. מרגיש מקובל ורצוי.

ג. מרגיש יָפֶה ומהודר.

ד. מרגיש מנותק ובודד.

8. בגן החיות נולד שִׁימְפַּנְז, שאימא שלו הייתה חולה ולא יכלה לטפל בו. אחד המטפלים בגן החיות לקח את השִׁימְפַּנְז אליו הביתה, טיפל בו וגידל אותו יחד עם הילדים שלו. כשהשִׁימְפַּנְז גדל והתחזק, המטפל החזיר אותו לגן החיות.

כמו מי הרגיש השִׁימְפַּנְז לאחר שהמטפל החזיר אותו לגן החיות?

א. כמו הָאַרְיֵה הַלָּבָן שהרגיש בְּנוֹחַ בין הָאֲרָיוֹת הרגילים.

ב. כמו היְעֵלָה שאהבה את הכלבלבים וחשבה שהיא בת משפחה שלהם.

ג. כמו גורי הכלבים שגילו חיבה לְיִעֵלָה שגדלה איתם.

ד. כמו הילד שאומץ על ידי זְאֵבִים וחש כְּאֵב כאשר הוא הופרד מהם.

Appendix 4. Reading Comprehension Test "Tamar" test

(Sabag-Shushan & Katzir, 2018)

קראו בעיון את כל הטקסט.

ההסכמה/ אודי רן

הטיול בספארי מזמן מפגש קרוב של בני האדם עם מגוון בעלי חיים. מרבית בעלי החיים בספארי הם חיות בר ואינם מאולפים, על כן אסור להתקרב אליהם יתר על המידה. המבקרים בספארי יכולים לבחור לבקר בשטח הפתוח שבו משוטטות באופן חופשי חיות הבר, כגון להקת אריות ולביאות. הביקור בשטח זה מתבצע רק באמצעות נסיעה ברכב במסלול קבוע ובליווי פקחים.

האריות והלביאות מתקרבים לעבר המכוניות, כשהם במרחק נגיעה מהמבקרים, ובאופן מפתיע, הם רק שולחים מבט משועמם, כאילו כדי לומר- אנחנו רואים אתכם אל תדאגו, אבל.....

מסתבר כי במשך השנים נוצרה מעין הסכמה בין הטורפים ובין המבקרים. בחוזה ההסכמה מצוין כי "עליכם להתנהג כאילו אנחנו לא שם" ועל ההסכמה הזאת "חתומים" שני הצדדים גם החיות וגם בני האדם. מערכת היחסים הזאת נשמרת מזה עשרות שנים, אלא שמדי פעם שני הצדדים בוחנים מעט את חוזה ההסכמה ולפעמים אפילו פורצים אותו.

*מעובד מתוך ילדי טבע הדברים, גיליון מס' 221, ספטמבר, 2013 ומתוך אתר הספארי

קראו את השאלות שלפניכם והקיפו את התשובה הנכונה.

1. מי הם הצדדים החתומים על החוזה?

א. האריות בלבד

ב. בני האדם בלבד.

ג. האריות ובני האדם.

ד. המבקרים והפקחים.

2. כיצד האריות או המבקרים יכולים להפר את החוזה?

א. האריות יסתתרו מפני המבקרים.

ב. האריות ישחבו כאילו המבקרים כלל לא שם, ולא יתקרבו אליהם.

ג. המבקרים ירדו מהרכב ויתקרבו אל האריות.

ד. המבקרים לא יבחרו לסייר בשטח הפתוח.

3. מדוע האריות מסכימים "לחתום" על החוזה"

א. כיוון שהפקחים מחייבים אותם לחתום על החוזה.

ב. כיוון שהיו רוצים להישאר בספארי וליהנות מהטיפול המסור של הצוות.

ג. כיוון שאם לא יחתמו, לא יגיעו מבקרים שלטח הפתוח בספארי.

ד. כיוון שאם לא יחתמו על החוזה, ייאלצו לעזוב את הספארי.

4. כיצד לדעתך ירגישו המבקרים במפגש מול האריות כשהם אינם יודעים על חוזה ההסכמה? ומדוע?

א. המבקרים ירגישו חרדה, כיוון שהאריות אינם מאולפים ויכולים לפגוע בהם.

ב. המבקרים ירגישו בטחון, כיוון שהם משוכנעים שהאריות לא יפגעו בהם.

ג. המבקרים ירגישו תסכול, כיון שהיו מעדיפים להיכנס ללא הפקחים.

ד. המבקרים ירגישו שעמום, כי האריות רק ישלחו מבט אל כיוון המבקרים.

5. מהו המסר המרכזי שניתן ללמוד מהקטע?

א. כדאי לבקר בשטח הפתוח בספארי, ולראות מחזה מרהיב של האריות.

ב. אפשר להכריח אחרים לחתום על חוזה.

ג. כאשר אחד הצדדים מפר את ההסכם, הוא צריך להיענש.

ד. אם כל צד יתחייב לשמור על חלקו בהסכם, הוא ירוויח בטחון ושלום.

קִראו בעיון את כל הטקסט.

ארמון החול / מקור לא ידוע

יצאתי לגינה עם יואב, בני הקטן. לפתע עיניי נתקלו במראה מיוחד: שני ילדים, שהיו שקועים בבניית ארמון חול. זה היה ארמון מיוחד במינו עם צריחים ומנהרות מקושטות באבנים, בפרחים, בעלים ובמקלות. כעבור זמן פנה הילד לאחיו ואמר: "בוא נלך הביתה".

בשעה שהם אצו לדרכם, פנה אלי יואב ושאל: "אמא, אני יכול לדרוך על הארמון?"

"יואב, חשוב על כל העבודה שלהם! האם כדאי לך לפרק אותו?"

יואב חשב על דברי האם ורץ להתנדנד. כעבור כמה דקות רץ לעבר ארגז החול ילד אחר, וללא התרעה מוקדמת, בעט בארמון וברח מיד מהמקום.

"אמא, עכשיו את מרשה לי לקפוץ על הארמון?" שאל שוב יואב. "אני חושבת שכן, לא נותר הרבה ממנו". יואב החל לדרוך על שרידי הארמון העומד.

פתאום הבחנתי באותם הילדים ששבו לארגז החול עם אימם. היא וילדיה שלחו בנו מבטים... האחד היה מופנה אלי, השני לבני..

ואני לא אמרתי מילה, רק השפלתי מבטי ארצה.

קראו את השאלות שלפניכם והקיפו את התשובה הנכונה.

1. מדוע הילדים הלכו לביתם?

א. כי הם סיימו לבנות את הארמון.

ב. כי הם רצו לקרוא לאימם שתבוא.

ג. כי הם רצו לחפש קישוטים נוספים לארמון.

ד. כי הם התעייפו מעבודתם הקשה.

2. כיצד נהרס הארמון?

א. האחים הרסו הארמון כשסיימו לשחק.

ב. יואב הרס את הארמון וילד אחר המשיך בהרס.

ג. ילד אחר שהגיע למקום הרס את הארמון ויואב המשיך בהרס.

ד. האמא הרסה את הארמון.

3. מדוע האמא הסכימה לבנה לדרוך על הארמון בפעם השנייה שביקש?

א. כיוון שראתה שהילדים שבנו את הארמון לא חזרו.

ב. כיוון שילד נוסף רצה להרוס את הארמון.

ג. כיוון שיואב חזר וביקש מספר רב של פעמים.

ד. כיוון שהארמון כבר היה הרוס.

4.מה נראה שהאֵם הרגישה כאשר הילדים חזרו וראו את ארמון החול שלהם?

א. האם הרגישה כעס על בנה, כיוון שנותר עדיין לקפץ על ההריסות ולא עזב את המקום.

ב. האם הרגישה מבוכה, כי הבינה שמאשימים אותה ואת בנה במעשה.

ג. האם הרגישה אדישות, כי הבן שלה לא הרס את הארמון ראשון, והם כלל לא אשמים.

ד. האם הרגישה הקלה, כי בנה קיבל את מה שרצה.

5. מהו המסר המרכזי מהסיפור?

א. אחרי שמבצעים עברה צריך לברוח מהמקום, כדי שלא יאשימו אותך.

ב. לא כדאי להשקיע בעבודה קשה, כי אחרים יהרסו לך.

ג. מי שממשיך בהרס שמישהו אחר התחיל אשם אף הוא בנזק.

ד. צריך לנסות לתקן את הנזק שמישהו אחר גורם.

קראו בעיון את כל הטקסט.

מגדל פיזה

מגדל פיזה, הוא מגדל פעמונים הניצב בעיר פיזה שבאיטליה. מגדל זה הינו מגדל עגול המתנוסס לגובה של כ -60 מטרים ומשקלו המוערך הוא מעל 14 טון. בניית המגדל החלה בשנת 1,173 ונמשכה כמאתיים שנה. על ראש המגדל הועלו שמונה פעמונים כשלכל פעמון צליל שונה (הפעמונים היום אינם עובדים). הפעמון הכבד שבהם שוקל כשלושה וחצי טון.

המגדל הפך לאחד המבנים הידועים בעולם, בעיקר בשל העובדה כי אינו עומד ישר, אלא נוטה לצד אחד. המגדל החל להיות מוטה לצד כבר בעת הבנייה, שכן הקרקע באזור לא חזקה מספיק, כדי לתמוך במבנים גבוהים.

במשך עשרות שנים הוקמו וועדות מומחים, כדי לחשוב כיצד ניתן לפתור את הסוגיה. בהחלטה שהתקבלה הוחלט לבצע באתר פעולות שיקום, שנמשכו כעשר שנים. במהלך השיקום הוסרו כמויות עפר מהצד המנוגד וכן הוסרו הפעמונים. פעולות השיקום הצליחו להקטין את מידת ההטיה לצד.

המגדל הפך לסמלה של העיר ובמשך יותר מ -700 שנה הגיעו תיירים מרחבי העולם כדי לחזות בפלא.

קראו את השאלות שלפניכם והקיפו את התשובה הנכונה.

1. **מדוע מגדל פיזה מוטה לצד?**

א. כי המגדל מעוגל.

ב. כי הקרקע לא חזקה מספיק.

ג. כי המגדל מתנוסס לגובה רב.

ד. כי המגדל שוקל משקל עצום.

2. **מהי לדעתך המטרה שהוקמה הוועדה?**

א. לחשוב כיצד ניתן להעתיק את המבנה המרהיב למקומות נוספים.

ב. לחשוב כיצד ניתן לקצר את משך הזמן לבנייה.

ג. לחשוב כיצד ניתן למנוע התמוטטות של המגדל.

ד. לחשוב כיצד ניתן להחזיר את הפעמונים לראש המגדל.

3. **מדוע הורידו את הפעמונים מראש המגדל?**

א. כדי להקל על משקל המגדל.

ב. כי הפעמונים אינם עובדים.

ג. כי הרעש מפריע לתיירים.

ד. כי היו צרכיים להתחיל בפעולות השיקום והשיפוץ באתר.

4. **מה מרגישים התיירים שמגיעים למגדל הפיזה?**

א. התיירים מרגישים אכזבה, על כשלון הבנייה שנמשך שנים רבות.

ב. התיירים מרגישים התלהבות, נוכח המראה המרהיב והיוצא דופן.

ג. התיירים מרגישים זלזול, על חוסר היכולת של הוועדות לתקן את המחדל.

ד. התיירים מרגישים לעג, כלפי הכשלון בבניית המגדל.

5. **מהו הרעיון המרכזי שניתן ללמוד מהקטע?**

א. צריך לתכנן אתרים יוצאי דופן שיעודדו תיירים לבקר.

ב. לפעמים הצלחות גדולות מתגלות ככשלונות.

ג. לפעמים כשלונות מתגלים כהצלחות גדולות.

ד. איכות הבנייה בשנים עברו היתה ירודה ולא מקצועית.

קִראו בעיון את כל הטקסט.

שקית של עוגיות/ מקור לא ידוע

ערב אחד בתחנת הרכבת, יעל הגיעה מוקדם מהרגיל. בזמן ההמתנה לרכבת נכנסה לחנויות שבתחנה. בחנות הספרים רכשה לעצמה ספר מותח, ובמעדנייה, קנתה שקית עוגיות מדיפות ריח. יעל ישבה בתחנה, היא הייתה מרוכזת מאוד בספר שקראה, כשבזווית העין הבחינה בגברת שהתיישבה לידה. להפתעתה, הגברת שלחה יד אל שקית העוגיות שהיתה מונחת ביניהן, וכאילו היתה זו השקית שלה, הרשתה לעצמה להתכבד מהעוגיות. יעל לא הבינה את התנהגותה של הגברת, אך החליטה להתעלם. על כל עוגייה שיעל לקחה מהשקית, גם הגברת לקחה אחת לפה. יעל חשבה לעצמה, עוד רגע הגברת גם תבקש ממני כוס קפה. כשנשארה רק עוגייה אחת, יעל תהתה מה הגברת תעשה עכשיו ....והיא, לקחה את העוגיה האחרונה וחלקה אותה לשניים: חצי היא הציעה ליעל, בעוד החצי השני, כבר היה לה בין השיניים.

לפתע נשמע קול שקשוק מתקרב, בלי להסתכל אחורה יעל קמה ממקומה ועזבה.

לאחר מכן, כשהתיישבה, היא החליטה לחזור לקרוא את הספר שלה. בעודה מפשפשת בתיק מחפשת אחר הספר, היא מצאה את שקית העוגיות המלאה שלה.

"אוי לא", היא אמרה לעצמה.

קראו את השאלות שלפניכם והקיפו את התשובה הנכונה.

1. למה יעל המתינה?

א. יעל המתינה שתסיים לקרוא את הספר המותח.

ב. יעל המתינה לבואה של הרכבת.

ג. יעל המתינה שתסיים את העוגיות שבשקית.

ד. יעל המתינה שהגברת תלך לדרכה.

2. מה יעל חשבה על התנהגותה של הגברת, ומדוע?

א. יעל חשבה שהגברת מתנהגת באדיבות, כיוון שחלקה איתה את העוגיה שנותרה.

ב. יעל חשבה שהגברת כנראה רעבה ואין לה מה לאכול.

ג. יעל חשבה שהגברת מתנהגת בחוסר נימוס, כיוון שביקשה מיעל לשתות כוס קפה.

ד. יעל חשבה שהגברת מתנהגת בחוצפה, כיוון שלקחה דבר שלא היה שייך לה.

3. מדוע הגברת חלקה את העוגיה האחרונה לחצי?

א. כי העוגיות שייכות ליעל, והגברת התביישה לאכול לבדה את העוגיה האחרונה שנותרה.

ב. כי העוגיות שייכות ליעל, ולא מנומס לאכול לבד.

ג. כי הגברת נדיבה ורצתה לחלוק עם יעל את העוגיה האחרונה שנותרה.

ד. כי זה היה תורה של יעל לקחת עוגיה.

4. מה נראה שיעל הרגישה כשהבחינה בשקית העוגיות שלה בתיק?

א. יעל הרגישה במבוכה, כיוון שהבינה שטעתה לגבי התנהגות הגברת.

ב. יעל הרגישה הקלה, כיוון שלא היתה צריכה להיות במחיצתה של הגברת יותר.

ג. יעל הייתה נרגשת, כיוון שיש לה שקית נוספת של עוגיות.

ד. יעל הייתה מופתעת, כיוון שיש לה עוד שקית עם עוגיות טעימות רק לעצמה.

5. מהו הרעיון המרכזי שניתן ללמוד מהקטע?

א. כדאי להתרחק מאנשים זרים.

ב. כדאי לחשוב היטב לפני שפועלים.

ג. לא כדאי למהר להסיק מסקנות על אנשים.

ד. לא כדאי להיות שקוע בפעילות ולהתעלם מהסובבים אותך.

Appendix 5. The Achievement Emotions Questionnaire for Pre-Adolescents

לפניכם משפטים המתארים מחשבות ורגשות של תלמידים לגבי שיעורי עברית. **סמנו ליד כל משפט עד כמה אתם מסכימים אִתו בדרך כלל, כשאתם נמצאים בכיתה בשיעור עברית.** אין תשובות נכונות או שגויות; כל אחד מרגיש אחרת.

1. אין טעם שאתכונן לשיעורי עברית מפני שאני גם ככה לא מבינ/ה את החומר הנלמד.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

2. עוד לפני ששיעור עברית מתחיל, אני כבר משלימ/ה עם העובדה שאני לא אבין את החומר הנלמד.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

3. יש לי מוטיבציה ללכת לשיעורי עברית כי הם מרתקים.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

4. אני מעדיפ/ה לא ללכת לשיעורי עברית כי אין סיכוי שאבין את החומר בכל מקרה.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

5. אני נהנה/נהנית להיות בשיעורי עברית.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

6. אני גאה שאני מסוגל/ת לעקוב אחרי החומר הנלמד בשיעור עברית.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

7. אני שמח/ה להיות בשיעורי עברית ולהקשיב למורה.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

8. אני מרגיש/ה לחוצ/ה בשיעורי עברית.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

9. שיעורי עברית משעממים אותי.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

10. אני גאה בתרומה שלי ללמידה בכיתה בשיעורי עברית.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

11. איבדתי כל תקווה להבנה של שיעורי עברית.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

12. אני פוחד/ת שאני עלול/ה לומר משהו לא נכון בשיעור עברית, ולכן אני מעדיפ/ה לא לומר שום דבר.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

13. אני חושב/ת ששיעורי עברית משעממים למדיי.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

14. אני מרגיש/ה שאני יכול/ה להיות גאה במה שאני יודע/ת בשיעורי עברית.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

15. מכיוון שאני מתגאה בהישגיי בשיעורי עברית, יש לי מוטיבציה להמשיך להשתתף בהם.

1	2	3	4	5
כלל לא מסכים/ה	מסכים/ה במידה מועטה מאוד	מסכים/ה במידה מועטה	מסכים/ה במידה רבה	מסכים/ה במידה רבה מאוד

מערכת הקשרים בין רגשות הישג בשיעורי שפה לתהליכי קריאה בקרב תלמידים בכיתות ד׳-ה׳

שירה בלייכר

תקציר

רקע תיאורטי

רגשות הישג

רגשות הישג על פי Pekrun (2006), הם רגשות המתעוררים בהקשר לפעילויות חינוכיות (לדוגמה, השתתפות בשיעור, למידה, היבחנות), או לתוצאותיהן (כלומר, הצלחה או כישלון). לפי תיאוריית שליטה-ערך ברגשות, הערכות קודמות של מידת השליטה ביכולת לבצע משימות, ושל תפיסת הערך הטמון בביצוען ובהצלחה בהן, מעוררות את רגשות ההישג. רגשות אלה משפיעים על היבטים קוגניטיביים ומוטיבציוניים שונים, אשר בתורם משפיעים על ההישגים האקדמיים. מערך קשרים זה הוא מעגלי, שכן ההישגים הלימודיים המושפעים מהרגשות משפיעים על תפיסות עתידיות של שליטה וערך וכתוצאה מכך על הרגשות (Pekrun et al., 2002; Pekrun, 2006). במהלך שני העשורים האחרונים נערך מחקר מקיף על מסגרת תיאורטית זו, ממנו עלו קשרים משמעותיים בין רגשות הישג לבין הישגים אקדמיים במגוון מקצועות לימוד וסביבות חינוכיות (Lichtenfeld et al., 2012; Pekrun et al., 2011; Pekrun et al., 2017; Putwain et al., 2018). ואולם רגשות הישג לא נחקרו לעומק בתחום הספציפי של קריאה.

תהליכי קריאה

שטף קריאה והבנת הנקרא הם שני כישורי קריאה מרכזיים העומדים בלב ההתפתחות האוריינות. מחקר רחב היקף נערך על המרכיבים הלשוניים והקוגניטיביים השונים העומדים בבסיס שטף הקריאה והבנת הנקרא (Adams, 1994; Berninger et al., 2010; Katzir et al., 2012; Landerl et al., 2019; Wolf & Bowers, 1999; Cain et al., 2004; Gough & Tunmer, 1986; Katzir et al., 2006; Kim, 2017; Oakhill et al., 2003; Perfetti, 2007). עם זאת, מחקרים רבים מלמדים גם על מעורבות משמעותית של היבטים רגשיים בתהליכי הקריאה (למשל, Bohn-Gettler, 2019; Chapman & Tunmer, 2003; Conlon et al., 2006; Katzir et al., 2018; Snow, 2002; Zaccoletti et al., 2020a, 2020b). רגשות הישג הקשורים בתהליכי קריאה זכו לתשומת לב מחקרית פחותה. בפרט, לרגשות הישג הנחווים במהלך שיעורי שפה יש חשיבות רבה מכיוון שכישורי קריאה נלמדים ומתפתחים בהם באופן רשמי.

שאלות מחקר, תוצאות ודיון בממצאים

המחקר הנוכחי נועד לבסס הבנה מעמיקה של מעורבותם ותרומתם של רגשות הישג לתהליכי קריאה. המחקר מתמקד במגוון רחב של רגשות הישג במסגרת שיעורי שפה, שרובם טרם נחקרו בהקשר

של תהליכי קריאה. מערכת קשרים זו נבחנה בקרב מדגם רחב של תלמידים בכיתות ד׳-ה׳ ($N = 1,050$), אשר נמצאים בשלבים מתקדמים בתהליך רכישת הקריאה. המחקר התמקד בארבעה נושאים עיקריים:

1. המאפיינים של רגשות הישג בשיעורי אומנויות השפה

המבנה הבסיסי של רגשות הישג הוא אוניברסלי, אולם עוצמתם ושכיחותם נתונים לשינויים הקשורים להיבטים תרבותיים, תחומי לימוד ומאפיינים אינדיבידואלים (למשל גיל ומגדר) (Pekrun, 2006). המחקר הנוכחי מרחיב את הידע על מאפייני רגשות הישג במסגרת הספציפית של למידה בכיתה בשיעורי שפה, בהם מתפתחות ונרכשות רשמית מיומנויות הקריאה. באופן ספציפי, המחקר בוחן רגשות של הנאה, גאווה, חרדה, חוסר אונים ושעמום, אשר הם רגשות הישג בולטים בהקשר של למידה בכיתה, לרבות הבדלי מגדר ודרגת כיתה (Katzir et al., 2018; Raccanello et al., 2013). מן הממצאים עלה כי התלמידים במחקר הנוכחי חוו תחושות גבוהות של הנאה וגאווה בשיעורי שפה, לצד תחושות נמוכות של שעמום, חרדה וחוסר אונים. ממצאי ניתוח שונות הצביעו על הבדלי דרגת כיתה, שהתבטאו בתחושות גבוהות יותר של הנאה וגאווה, ובתחושת חוסר אונים נמוכה יותר בקרב תלמידי כיתות ד׳ בהשוואה לתלמידי כיתות ה׳. בנוגע להבדלי מגדר, אף על פי שלא נמצאו הבדלים ביכולות קריאה בין המינים, בנות דיווחו על רמות גבוהות יותר של הנאה, גאווה וחרדה ועל רמת שעמום נמוכה בשיעורי שפה בהשוואה לבנים. הממצאים שופכים אור על אופי הרגשות שחווים תלמידים בשלבים מתקדמים בהתפתחות הקריאה בזמן למידה בשיעורי שפה, ומספקים תובנות חינוכיות משמעותיות ביחס להבדלים ההתפתחותיים לא רק ביכולות הקריאה אלא גם ברגשות הקשורים בהם, וכן בנוגע להבדלים מגדר ברגשות למרות יכולות קריאה שוות.

2. הקשר והתרומה של רגשות הישג בשיעורי אומנויות השפה לשטף קריאה ולהבנת הנקרא

מרבית המחקרים בתחום הספציפי של רגשות הישג בקריאה התמקדו בתחושת חרדה. לאחרונה, מספר מחקרים הרחיבו את מגוון רגשות ההישג שנבדקו בהקשר זה, והצביעו על כך שלרגשות הישג מצביים ותכונתיים הקשורים לעיסוק בפעילות קריאה יש השפעה ישירה על הישגים בקריאה (Päivinen et al., 2019; Sainio et al., 2019a; Zaccoletti et al., 2020a, 2020b). בקנה אחד עם התפתחות מחקרית עדכנית זו, המחקר הנוכחי בחן את מערכת היחסים בין רגשות הישג בשיעורי שפה לבין שטף קריאה והבנת הנקרא. מניתוח המתאמים בין המשתנים עלה כי לשטף קריאה והבנת הנקרא קשר חיובי משמעותי לרמת הגאווה של התלמידים, וכן קשרים שליליים משמעותיים לרמות השעמום, חוסר האונים והחרדה בשיעורי שפה. בניתוח מודל משוואות מבניות (SEM), מעבר לדרגת כיתה ומגדר, לגאווה וחרדה היה אפקט חיובי ישיר על שטף הקריאה, בעוד שלחוסר אונים והנאה היה אפקט שלילי ישיר. בנוסף, לשעמום היה אפקט חיובי ישיר על הבנת הנקרא, בעוד שלחוסר אונים היה אפקט ישיר שלילי. קשרים

מגוונים אלה עם תהליכי קריאה מדגישים את הנחיצות בהכרה במעורבות האינטגרלית של רגשות הישג בקריאה, ובניצול יעיל של השפעתם.

3. המאפיינים והקשרים בין רגשות הישג בשיעורי שפה לתהליכי קריאה בקרב תלמידים בעלי יכולות קריאה שונות

ממחקרים עולה כי ישנם הבדלים בין עוצמת ודפוס רגשות הישג של תלמידים בעלי יכולות קוגניטיביות שונות (Goetz et al., 2007; Roos et al., 2015), ובעיקר כי תלמידים עם קשיים בקריאה מציגים דפוס רגשי שלילי יותר (Blicher et al., 2017; Chapman et al., 2000; Idan, & Margalit, 2014; Nelson & Harwood, 2011; Päivinen et al., 2019; Sainio et al., 2019a, 2019b). המחקר הנוכחי מרחיב שורת מחקרים אלו, באמצעות בחינת ההבדלים בעוצמת רגשות הישג בשיעורי שפה, דפוס יחסי הגומלין ביניהם, והקשר שלהם לתהליכי קריאה, בקרב תלמידים עם יכולת קריאה נמוכה, ממוצעת וגבוהה. מניתוח שונות עלה כי תלמידים בעלי יכולת קריאה נמוכה דווחו על רמות נמוכות של רגשות חיוביים ועל רמות גבוהות של רגשות שליליים בהשוואה לשתי קבוצות התלמידים בעלי יכולת קריאה תקינה (ממוצעת וגבוהה) ; אלו נבדלו ביניהן רק ברמת חוסר האונים, שהייתה הנמוכה ביותר בקרב התלמידים בעלי יכולת הקריאה הגבוהה. ניתוח שונות של קבוצות מרובות העלה כי לתלמידים עם יכולת קריאה נמוכה דפוס שלילי יותר של יחסי גומלין בין רגשות, שהתבטא בתחושות עזות של חוסר אונים, שעמום וחרדה, שלא התמתנו על ידי רגשות חיוביים. תלמידים בעלי יכולת קריאה תקינה הפגינו דפוס רגשי חיובי יותר ; ככל שרמת ההנאה והגאווה הייתה גבוהה, כך רמת החרדה הייתה נמוכה יותר. כמו כן, בקרב כל הקבוצות נמצאו אפקטים ישירים של רגשות הישג על שטף קריאה והבנת הנקרא, אולם הדפוס שלהם היה שונה בכל קבוצה. ממצאים אלו מציעים נקודת מבט מעמיקה על חוויותיהם הרגשיות של תלמידים בעלי יכולות קריאה שונות, אשר טומנת בחובה השלכות חינוכיות משמעותיות בצורך להתחשב לא רק בשונות ביכולות הקוגניטיביות השונות של התלמידים, אלא גם בהבדלים ברגשותיהם.

4. קשרים ישירים ועקיפים ביחסי הגומלין בין שטף קריאה, אוצר מילים, הבנת הנקרא ורגשות הישג בשיעורי שפה

עבודת מחקר יסודית שנערכה לאחרונה על ידי Kim (2017, 2020a, 2020b) הציעה נקודת מבט אינטגרטיבית על מערך היחסים בין התהליכים הקוגניטיביים והלשוניים המרובים הכרוכים בתהליך הקריאה. המחקר הנוכחי מוסיף לפרספקטיבה מתקדמת זו את תרומתם של רגשות הישג בשיעור שפה. במחקר זה הוצע מודל אינטגרטיבי, הבוחן את הקשרים הישירים והעקיפים של רגשות הישג בשיעורי שפה בתהליך הקריאה הכולל. המודל נבחן בנפרד בכיתה ד׳ ובכיתה ה׳, ולכן מציע גם נקודת מבט התפתחותית על מערך קשרים זה. ממצאי הניתוחים איששו את המודל המוצע, והעלו כי לרגשות הישג אפקטים ישירים ועקיפים משמעותיים על תהליכי הקריאה, וכן כי הרגשות הושפעו מתהליכי הקריאה. לאורך כל הניתוחים

בלטה ההשפעה של תחושת חוסר אונים, אשר נמצאה עם אפקט ישיר משמעותי על כל תהליכי הקריאה, וכן כמתווכת את האפקטים העקיפים של רגשות הישג אחרים על תהליכי הקריאה. הממצאים על מעורבות אינטראקטיבית משמעותית זו של רגשות הישג בשיעורי שפה בתהליכי קריאה, לצד זו של היבטים לשוניים, מדגישים את משמעותו של ההיבט הרגשי בקריאה, ואת הצורך לספק לתלמידים תמיכה חינוכית ורגשית כאחד.

דיון כללי ומסקנות

למחקר הנוכחי יש תרומה משמעותית לגוף המחקר המתפתח בנושא אספקטים רגשיים בקריאה, על ידי הדגשת מעורבות רגשות הישג בקריאה, לצד מרכיבים לשוניים וקוגניטיביים. יתר על כן, הממצאים מחזקים את התפיסה כי היחסים בין רגשות ותהליכי קריאה אינם תלויים ברגש אחד אלא מעוגנים בהשפעות המשותפות של מגוון רחב של רגשות. במיוחד, התפקיד הכפול של חוסר אונים, הן בקשריו הישירים לתהליכי הקריאה והן בתפקידו כמתווך את ההשפעות העקיפות של רגשות אחרים, מדגיש את החשיבות בקידום תחושת מסוגלות ויכולת בקרב כל התלמידים, ובמיוחד בקרב תלמידים עם יכולת קריאה נמוכה. הממצאים קוראים לקידום פרקטיקות מתן משוב מקדם ותהליכי ויסות עצמי יעילים, כדי לשפר הן את יכולות הקריאה של התלמידים ולא חשוב פחות מכך, את רווחתם הרגשית.

מערכת הקשרים בין רגשות הישג בשיעורי שפה לתהליכי קריאה בקרב תלמידים בכיתות ד'-ה'

מאת: שירה בלייכר

בהנחיית: פרופ' מיכל שני

פרופ' תמי קציר

חיבור לשם קבלת התואר "דוקטור לפילוסופיה"

אוניברסיטת חיפה

הפקולטה לחינוך

החוג ללקויות למידה

אפריל, 2021

מערכת הקשרים בין רגשות הישג בשיעורי שפה לתהליכי קריאה בקרב תלמידים בכיתות ד'-ה'

שירה בלייכר

חיבור לשם קבלת התואר "דוקטור לפילוסופיה"

מונוגרפיה

אוניברסיטת חיפה

הפקולטה לחינוך

החוג ללקויות למידה

אפריל, 2021