



EVALUATION OF THE MEDIATING ROLE OF ATTENTION IN THE RELATIONSHIP BETWEEN SOCIAL COMPETENCE, AGGRESSION AND EARLY LITERACY

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Abstract

This study aims to examine the mediating role of attention in the relationship between their social competence, aggression and early literacy by constructing a path model for children's early literacy. This research was designed in a causal pattern. The sample of this study consisted of 256 children attending pre-school education. The data were collected using the Personal Information Form, Social Competence and Behavior Evaluation Inventory-Parent Form, Early Literacy Skills Assessment Tool and Frankfurter Test Für Funjahrige Konzentration-(FTF-K). Path analysis technique was used in data analysis. The significance of its indirect effects was evaluated using the bootstrapping method. The findings obtained in this study showed that social competence predicted attention positively, whereas aggression predicted attention negatively. Attention positively predicted early literacy. The findings suggested that attention had a fully mediating role between social competence, aggression and early literacy.

Keywords: Social competence, aggression, early literacy, attention.

INTRODUCTION

Early literacy is based on the understanding that children master basic skills and gain awareness before they learn to read and write (Niessen, 2003). Studies show that the developmental origins of reading and writing skills are laid in early childhood (Lonigan, Burgess, & Anthony, 2000). Every experience in early childhood is significant in brain development given that learning experiences have a positive effect on brain development. Brain research also emphasizes the significance of early experiences in preparing children for reading and writing education. Early literacy skills, in which the foundations of literacy proficiency are laid in the preschool period, include oral language skills, vocabulary, phonological awareness skills, alphabet and letter knowledge, print awareness and writing skills. These skills form the basis of literacy development for children (Strickland & Riley-Ayers, 2007; Skibbe, Gerde, Wright, & Samples-Steele, 2016; Wright & Cervetti, 2017). It is also significant to create a developmentally appropriate environment and family support in raising awareness of literacy skills in children (Jackman, 2012). Thus, the education of children in the preschool period should be scientific and systematic (Shedd, 2005). It is very important for them to provide qualified and repetitive literacy experiences in promoting early literacy in preschool classes (Sandall & Schwartz, 2008).



Children who grow up around early literacy equipped with rich stimulants in early childhood can successfully transition from the early literacy process to the formal literacy process in primary education (Birgisdottir, Gestsdottir, & Geldhof, 2020). In primary education, some children succeed in literacy gains and others fail due to their differences in children's knowledge and skills related to early literacy (Kennedy, Dunphy, Dwyer, Hayes, McPhillips, Marsh, O'Connor, & Shiel, 2012). Early literacy studies contribute to gaining interest, attitude and motivation towards reading and writing and form the basis for being a good literate in adulthood (Altınkaynak & Akman, 2016). Early literacy studies in early childhood help teachers become aware of children's reading and writing problems, prevent them, and decide which aspects of early literacy skills to support. Children in this period can prepare for school and catch up with the general curriculum by applying special education programs to children with speech development and/or language disorders. Early literacy studies are important for preventive programme (Wilcox, Gray, & Reiser, 2020).

Cognitive and social development is the basis for early childhood, school preparation and success. Executive functions in early childhood are effective children acquire early literacy skills. Executive functions are neurocognitive skills involved in targeted problem solving in new or challenging situations. The executive function shows a rapid developmental increase in early childhood, especially between the ages of three and five (Garon, Bryson, & Smith, 2008). Executive function in early childhood is divided into hot and cold executive functions. Cold executive function is associated with the cognitive aspects of problem solving and often involves abstract, symbolic tasks. Definitions of cold executive functions arise from cognitive neuropsychology and often include working memory, attention shift, or flexibility and inhibition. Cold execution function is associated with academic indicators of school readiness. Cool executive functions are related to early literacy, math, and writing development, which are important in preschool preparation and academic success. Hot executive function is directly related to motivation; it refers to problem-solving in contexts where there is a delay in satisfaction, such as increased mental arousal and/or delaying pleasure. Therefore, there are two significant factors in the gaining of early literacy skills in early childhood: cognitive function, which is cold executive function, and social, which is hot executive function. Cognitive competence of children in gaining early literacy skills while representing cognitive processes, social processes and develop early literacy skills in a learning environment where teachers, represents competence in peer and adult interactions (Ladd, Birch, & Buhs, 1999; Mann, Hund, Hesson-McInnis, & Roman 2016; Razza & Raymond, 2015).

Biological, social, emotional and environmental factors, individual differences such as attention and behaviour in children affect children's executive functions. Disorder in cold executive functions such as behavioural and attention problems are risk factors for children's academic difficulties / failures. Attention disorder causes individuals to lack the ability to focus on relevant information while ignoring distractions or distracting selective attention, which makes the acquisition of literacy skills difficult (Stevens, Harn, Chard, Currin, Parisi, & Neville, 2013). Attention disorder causes individuals to be deprived of focusing on relevant information while ignoring distractions or using selective attention, which makes it difficult to acquire literacy skills (Stevens et al. 2013). Attention deficit has a wider impact on the visual and auditory domains in linguistic and non-linguistic contexts. Therefore, visual and auditory perception is an important factor in children's phonological awareness, alphabet awareness and acquisition of memory skills. Attention deficit in children makes it difficult to acquire early literacy skills by negatively affecting their visual and auditory perceptions. Children with attention deficits benefit less than other children from early literacy activities offered at home and in preschool classrooms. In addition, the attention of children in early childhood is important in acquiring vocabulary and reading comprehension skills. Attention deficit can prevent children from acquiring reading skills (Dally, 2006). Attention deficit may prevent children from acquiring reading skills. Impairments in hot executive functions, such as social skills and social relations problems, are risk factors for children's early literacy problems (Denham, 2006). Social skill is the behavior shown in the face of a social situation or event. Social competence, on the other hand, refers to the consistency in behaviors that give clues about the individual's subsequent behaviors due to



understanding, evaluating and the individual's next behavior because of the evaluation. Social competence includes the child's ability to succeed in social interactions. Self-control and adaptation in early childhood are related to social competence (Hogan, Scott, & Bauer, 1992).

Children with high social and emotional competence can understand and manage their emotions, and they can better develop and maintain peer relationships. Aggression, the negative sub-dimension of social competence, is often defined as an act that deliberately harms others (Crick & Grotpeter, 1995). Aggressive children are not able to react with more appropriate strategies because they lack social skills, so these children who act aggressively towards their peers are socially inept children. According to the peer aggression model resulting from a lack of social skills, aggressive children do not have the necessary social skills (Randall, 1997), they cannot see appropriate social behaviors, or they do not have empathy skills (Olweus, 1993). Therefore they behave aggressively towards their peers. Children who cannot acquire social behavior miss important learning opportunities. Because these children do not listen to the teacher, they do not participate in class activities, and are excluded by their friends due to their inappropriate behavior. Close and positive friendship relationships in early childhood support children's cognitive development in general and more specifically early literacy skills (Haak, Downer, & Reeve, 2012).

Children use peer interactions in complex learning activities in preschool classrooms. In addition, children learn and experience new demands and expectations in this environment. Socially undeveloped children have been documented to display maladaptive behaviors such as dislike of school, school phobia, low academic motivation, less collaborative classroom behavior, and lower achievement in areas such as math, writing, and reading. Also, peer interactions can support or stress children's social and academic lives. Therefore, children who cannot acquire social behaviors may have difficulty focusing their attention on academic skills as they cannot cope with the stress they experience in peer interaction (Farran & Son-Yarbrough, 2001). In the review of the related literature, it is seen that there are studies on the prediction and effect of attention and social behaviors on early literacy skills.

In conclusion, since children with attention and social competence problems miss important learning opportunities, it is very important to create early learning environments to overcome this situation. Close and positive friendships in early childhood support children's cognitive development in general and early literacy skills more specifically (Haak, Downer, & Reeve, 2012). In addition, children come to the classroom with different social competence and attention levels, and children's social competence and attention are critical for early childhood. Ladd and Burgess (2001) stated that children who exhibited more prosocial behaviors in early childhood participated in class activities and were more associated with their subsequent academic achievements than children who exhibited aggressive behaviors. Elias and Haynes (2008) found that social competence and peer relationships in early childhood are important factors in their academic success in primary school. Dice and Schwanenflugel (2012) found that there is a correlation between attention and early literacy skills. They also stated that literacy in primary school and attention in early childhood are important. Stevens et al. 2013 found that children at risk in learning to read and write have low attention skills. Teachers stated that preschool children generally do not have the necessary basic competencies such as following instructions, focusing and maintaining their attention, working independently, relations with friends, and controlling anger and aggression (Rimm- Kaufman, Curby, Grimm, & Nathanson, 2009). Although there are studies on attention (Razza, Martin, & Brooks-Gunn, 2012; Reynolds & Besner, 2006; Willcutt, Betjemann, McGrath, Chhabildas, Olson, De Fries, & Pennington, 2010) and social behaviors (Enerem, 2018; Rabiner, Godwin, & Dodge, 2016; Taylor & Leung, 2020; Vitiello & Williford, 2016), there is no research on the effects and effects of both attention and social behaviours' (social competence and aggression), which are very important in the acquisition of early literacy skills in early childhood, on early literacy. It is necessary to take care of attention problems, lack of social competence skills and aggressive behaviours in early childhood by examining the relationship between early literacy skills (Elias & Haynes, 2008; Wilcox, Gray, & Reiser, 2020).



Therefore, this study aims to examine the mediating role of attention in the relationship between their social competence, aggression and early literacy by constructing a path model for children's early literacy. For this general purpose, the following research hypotheses have been created:

H_{1.1}. Social competence positively predicts attention.

H_{1.2}. Aggression negatively predicts attention.

H_{1.3}. Attention positively predicts early literacy.

H_{1.4}. Social competence positively predicts early literacy.

H_{1.5}. Aggression negatively predicts early literacy

H_{1.6}. Attention has a mediating effect on the relationship between social competence and early literacy.

H_{1.7}. Attention has a mediating effect on the relationship between aggression and early literacy.

METHOD

Research Model

This study aims to examine the mediating role of attention in the relationship between their social competence, aggression and early literacy by constructing a path model for children's early literacy. For this purpose, this research was carried out in a causal pattern. Causal pattern deals with the relationships between variables in the context of cause and effect. In this study, the cause variables were attention, social competence, and aggression. The dependent variable is early literacy. Figure 1 shows the hypothetical model.

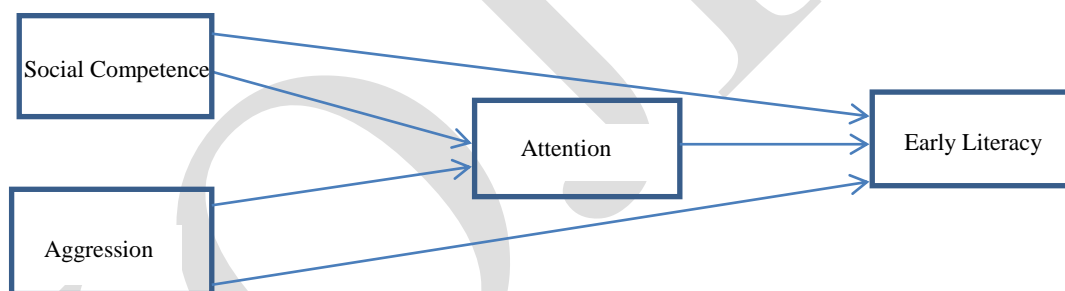


Figure 1. Hypothetical model

Research Sample

The sample of this research consists of 256 children aged 5-6 years who attend pre-school education institutions in Eskişehir city center in Turkey. The sample of this research was determined by the criterion sampling method, one of the purposeful sampling methods. Being in the 5-6 old, attending pre-school education, and having no developmental problems were determined as criteria. 60.2% of the children participating in this research were five years old and 39.2% of them were six years old. 53.9% of the children are girls and 46.1% were boys. 18.8% of the mothers of the children participating in this study had a certificate of primary education, 36.7% were high school graduates, and 44.5% were university graduates and postgraduates. 16.8% of the fathers of the children participating in this study had a certificate of primary education, 33.6% were high school graduates, and 49.6% were university graduates and postgraduates. The family income of 27.7% of the children participating in the research was between 0-2500 TL, 31.6% of them was between 2501-5000 TL and 40.6% was 5001 TL or above.



Table 1. Demographic characteristics of the sample group

Status	Group	f	%
Age	5 age	154	60,2
	6 age	102	39,8
Gender	Girl	138	53,9
	Boy	118	46,1
Mother Educational Status	Primary Education	48	18,8
	High School Graduates	94	36,7
	University Graduates/ Postgraduates	114	44,5
Father Educational Status	Primary Education	43	16,8
	High School Graduates	86	33,6
	University Graduates/ Postgraduates	127	49,6
Family Income	0-2500 TL	71	27,7
	2501-5000 TL	81	31,6
	5001 TL. or above.	104	40,6

Data Collection Tools

Personal Information Form

It is the form used to determine the demographic qualities (age, gender, mothers' and fathers' educational status, and family income) of the children in the research group.

Social Competence and Behavior Evaluation Inventory-Parent Form

The scale was developed by LaFreniere (1990). It is used to evaluate the social competence and decency of children aged three to six years, based on parental observation and consists of 30 items. Scale items are graded on a six-point likert scale. The aim of selecting this scale in the study is that the social competence and aggression of children are suitable for evaluation by their parents, and the validity and reliability levels of the scale are high. Cronbach's alpha coefficient of the original scale ranged from .73 and .82. In the Turkish adaptation (Dereli-İman, Danişman, Yaya, & Akın Demircan, 2014) the scale was applied to determine discovery factor analysis to data from 317 children and, it was determined that the scale with 76.26% variance had a three-factor structure in its original form. A confirmatory factor analysis was performed in the other dataset (300 children) to confirm the resulting structure, and a good fit of the model was determined (GFI=.91, AGFI=.88, CFI=.98, RMSEA=.06, $\chi^2/sd = 2.07$). Cronbach's Alpha coefficient was found .82 for the overall scale, and .97, .86 and .92 for lower sub-dimensions. In this study, it was found as an internal consistency coefficient according to the results of the reliability analysis of the scale .92 social competence sub-dimension and .82 aggression / anger sub-dimension.

Early Literacy Skills Assessment Tool

This tool was developed by Karaman (2013). The Early Literacy Skills Assessment Tool consists of 96 items and consists of five sub-dimensions including phonological awareness, print awareness. Matching images, story comprehension, pre-writing skills. Each item in the assessment tool is given 1 point for correct answers and "0" points for incorrect answers. In the assessment tool, each dimension can be scored separately or scored as a total score. The variance explained as a result of the exploratory factor analysis was 59.73% for Phonological Awareness Skills, 40.01% for Print Awareness, 40.22% for Story Comprehension, 55.741% for Matching Images, and 56.70% for Pre-Writing Skills. The reliability coefficient was found as .91, .92, .76 for Phonological Awareness Skills, .75, .72, .60 for Print Awareness, .61, .75, .64 for Story Comprehension, .71, .64, .70 for Matching Images, and .77, .86, .72 for Pre-Writing Skills. Confirmatory Factor Analysis was performed on the assessment tool in order to verify the structure obtained and the acceptable fit index of the model was determined (Phonological Awareness Skills: GFI=.83, AGFI=.82, CFI=.97, RMSEA=.045, $\chi^2/sd=1.9$; Print Awareness: GFI=.99 AGFI=.99 CFI=1.00, RMSEA=.090,



$\chi^2/sd=2.12$; story comprehension, $GFI=.94$ $AGFI=.90$ $CFI=.91$, $RMSEA=.094$, $\chi^2 /sd=5.2$; matching images: $GFI=.95$ $AGFI=.92$ $CFI=.95$, $RMSEA=.077$, $\chi^2 /sd=3.7$; Pre-writing Skills: $GFI=.81$ $AGFI=.67$ $CFI=.83$, $RMSEA=.20$, $\chi^2/sd= 19.5$). The KR-20 reliability coefficient was found as .91, .92, .76 for Phonological Awareness Skills, .75, .72, .60 for Print Awareness, .61, .75, .64 for Story Comprehension, .71, .64, .70 for Matching Images, and .77, .86, .72 for Pre-Writing Skills. In this study, the reliability analysis of the early literacy skill assessment tool was examined with the internal consistency coefficient and internal consistency coefficient was found to be .91.

Attention gathering test of five years old children (Frankfurter test für funjahrige konzentration–FTF-K)

In this test, which aims to measure children's attention skills, children are asked to find and Mark pears from mixed apples and pears within 90 Seconds. There are a total of 42 pears in the test. It is a neuro-psychometric test developed by Raatz and Möhling (1971). The Test was administered to 1,170 children in 1970. In 1971, the test for validity and reliability in this study, age, gender, and socioeconomic status of the standardized 3-week intervals and Child 29 test-retest method was applied and the correlation coefficient $R=.85$ was. Standardization of the test within the scope of validity and reliability was carried out again by Gözüm and Kandır (2018). Children's attention points were found to differ by gender and socio-economic level. In the reliability study of the test, the Pearson product moment coefficient $r=.78$ between the first application and the second application was found .74 test-for retest reliability (Gözüm & Kandır, 2018).

Data Analysis

Preliminary analyses were checked before data analysis. In this context, the normality assumption was tested. Hence, kurtosis and skewness values were examined. According to Finney and DiStefano (2006), ± 2 for skewness and ± 7 for kurtosis can be evaluated within the scope of normality criteria. Among the observed variables in this study, skewness was found to vary between $-.49$ and $.81$, and kurtosis varied between -1.51 and $-.94$ (see Table 1). Consequently, these values indicated that the data of the observed variables in this study were normally distributed. Also, it was seen that the correlation coefficients between the observed variables in this study were below .90 (see Table 2). This finding meant that there was no multiple linear correlation problem between variables. After the preliminary analyses, path analysis was started. Since this study aimed to reveal the cause-effect relationship between the observed variables, the path analysis technique was used in the analysis of the data. In determining this cause and effect relationship, the significance of the path coefficients and the goodness of fit indexes were examined. In this study, the goodness of fit indices was considered X^2 , X^2/sd ratio, GFI , NFI , CFI , TLI and $RMSEA$. Acceptance values were accepted as $X^2/sd \leq 3$; GFI , NFI , CFI and $TLI \geq .95$ and $RMSEA \leq .05$ (Hu & Bentler, 1999; Tabachnick & Fidell 2007). In addition, the stages suggested by Baron and Kenny (1986) were considered in the mediation test. Finally, the bootstrapping method was used to test the significance of its mediation (Shrout & Bolger, 2002). In this context, 5000 bootstraps were created in this research. Accordingly, confidence intervals (lower-upper limit) and bootstrap coefficient were obtained. As an acceptance criterion, the fact that the lower and upper limits in the confidence interval do not include zero as a result of the bootstrap procedure indicates that their indirect effects are significant.

In addition, the stages suggested by Baron and Kenny (1986) were taken into account in the mediation test:

1. There is a statistically significant relationship between the independent variables (aggression and social competence) and the dependent variable (early literacy).
2. There is a statistically significant relationship between the independent variables (aggression and social competence) and the mediator variable (attention).
3. There is a statistically significant relationship between the mediator variable (attention) and the dependent variable (early literacy) and this relationship continues when the effect of the independent variables (aggression and social competence) is controlled, and the mediating variable (attention) is the dependent variable (early literacy), the significant decrease in the amount of relationship between



the independent variables (aggression and social competence) and the dependent variable (early literacy) is evaluated as "partial mediation", while the meaningful meaningfulness of this relationship is defined as "full mediation". Finally, the bootstrapping method was used to test the significance of its mediation (Shrout & Bolger, 2002). In this context, 5000 bootstrap were created in this research. Accordingly, confidence intervals (lower-upper limit) and bootstrap coefficient were obtained. As an acceptance criterion, the fact that the lower and upper limits in the confidence interval do not include zero as a result of the bootstrap procedure indicates that their indirect effects are significant (Hayes, 2017).

RESULTS

In this study, descriptive statistics, kurtosis and skewness values were given first. Then, relationships between observed variables were reported. Finally, information about the path analysis model between observed variables was presented. .

Table 2. Descriptive statistics, kurtosis and skewness values

Variables	N	Mean	Std.Dev.	Skewness	Kurtosis
Social Competence	256	38.07	14.80	-.49	-.98
Aggression	256	9.93	3.81	.41	-1.00
Attention	256	24.53	12.59	-.08	-1.51
Early Literacy	256	44.68	27.07	.81	-.94

Table 3. Pearson moment correlation results between observed variables

Variables	Social Competence	Aggression	Attention	Early Literacy
Social Competence	-	-.612**	.727**	.434**
Aggression	-.612**	-	-.652**	-.366**
Attention	.727**	-.652**	-	.644**
Early Literacy	.434**	-.366**	.644**	-

**p<.01

As given in Table 3, there were significant relationships between all observed variables. The highest correlation coefficient was found between social competence and attention as high and positive ($r=.727$, $p<.01$). In addition, the lowest correlation was between aggression and early literacy at a medium level and negatively ($r=-.366$, $p<.01$). On the other hand, the standardized path coefficients of the hypothetical model as a result of the path analysis are shown in Figure 2. The path analysis results of the hypothetical model are also given in Table 4.

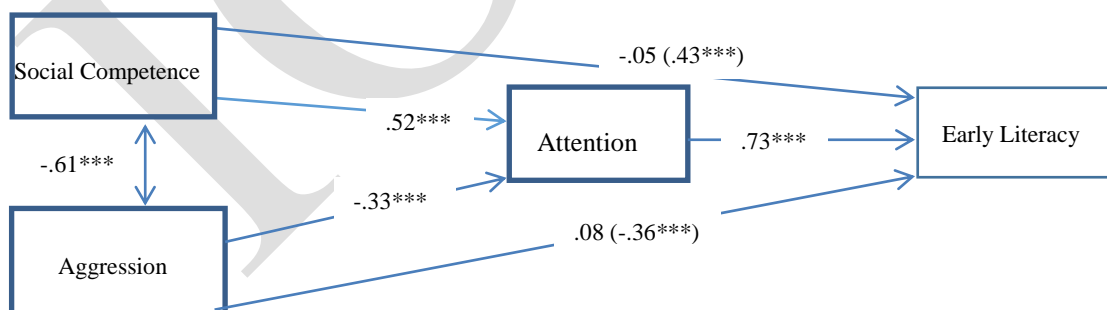


Figure 2. Standardized path coefficients of the hypothetical model

As given in Table 4, social competence significantly and positively predicted attention ($\beta=.52$, $p<.001$) and attention significantly and positively predicted early literacy ($\beta=.73$, $p<.001$), while aggression significantly and negatively predicts attention ($\beta=-.33$, $p<.001$). Also, Table 3 shows that some path coefficients were not statistically significant. In this context, paths that were not statistically significant were excluded from the analysis and analyzed again.



Table 4. Path analysis results of the hypothetical model

Dependent Variable	Independent Variable	B	SH	β	t
Attention	<--- Social Competence	.44	.04	.52	10.45***
Attention	<--- Aggression	-1.09	.16	-.33	-6.59***
Early Literacy	<--- Social Competence	-.09	.13	-.05	-0.68
Early Literacy	<--- Aggression	.58	.46	.08	1.25
Early Literacy	<--- Attention	1.57	.16	.73	9.74***

***p<.001

The goodness of fit values for the final model obtained by repeating the analysis are presented in Table 5.

Table 5. The goodness of fit values of the final model

Fit Parameter	Coefficient
CFI	.99
GFI	.99
NFI	.99
TLI	.99
RMSEA	.03
df	2
χ^2	2.66
χ^2/sd	1.33

In Table 5, the goodness of fit values of the final model reached after the insignificant paths were removed and analyzed again are given. As shown in Table 5, it was found 2.66 for chi-square (χ^2), $p>.01$, 2 for degrees of freedom (df) and 1.33 for χ^2/sd . In addition, fit indices were determined as CFI: .99, GFI: .99, NFI: .99 and TLI: .99 and the RMSEA value was determined as .03. In conclusion, the fact that this model is less than 3 ($\chi^2/sd \leq 3$) indicates a good fit between the replicated and observed covariance matrices. In addition, GFI, NFI, CFI and TLI $\geq .95$ indicates that the data are compatible with the obtained path analysis model. The results of the path analysis of the final model obtained by excluding insignificant paths are given in Table 6.

Table 6. Path analysis results of the final model

Dependent Variable	Independent Variable	B	SH	β	t
Attention	<--- Social Competence	.44	.04	.52	10.45***
Attention	<--- Aggression	-1.09	.16	-.33	-6.59***
Early Literacy	<--- Attention	1.38	.10	.64	13.42***

***p<.001

In Table 6, accordingly, one-unit increase in social competence increases students' attention by .52 unit ($t=10.45$; $p<.001$). Also, a one-unit increase in aggression reduces students' attention by .33 unit ($t=-6.59$; $p<.001$). In addition, a one-unit increase in attention increases students' early literacy by .64 unit ($t=13.42$; $p<.001$).

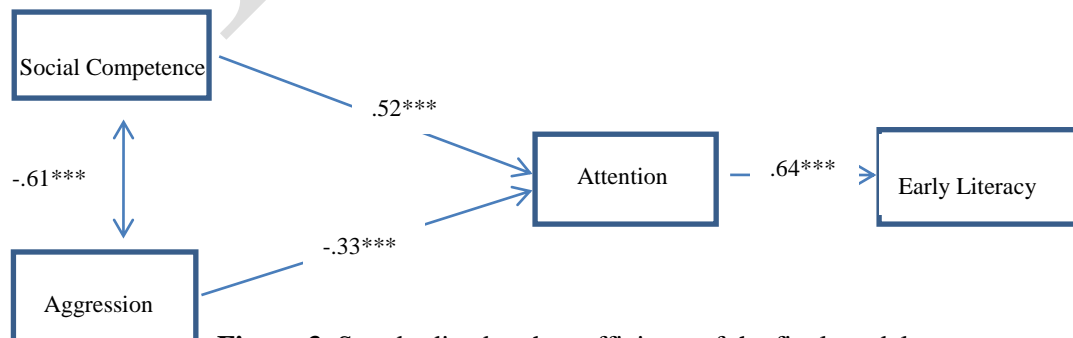


Figure 3. Standardized path coefficients of the final model



Standardized path coefficients are given in Figure 3. Accordingly, one-unit increase in social competence increased students' attention by .52 unit ($t=10.45$; $p<.001$). Also, a one-unit increase in aggression reduces students' attention by .33 units ($t=-6.59$; $p<.001$). In addition, a one-unit increase in attention increased students' early literacy by .64 units ($t=13.42$; $p<.001$).

When the indirect effects were examined, it was found that attention had a full mediating effect on the relationship between aggression and early literacy and the relationship between social competence and early literacy. This finding is based on the mediation effect criteria determined by Baron and Kenny (1986). The relationship between aggression and early literacy alone was significant ($\beta: -.36$; $t=-6.27$; $p<.001$). When the mediating effect of attention was added to this relationship, it was found that the relationship between aggression and early literacy was not statistically significant ($\beta: .08$; $t=1.25$; $p>.05$). This finding showed that attention was fully mediator. Likewise, it was found that the relationship between social competence and early literacy alone was significant ($\beta: .43$; $t=7.68$; $p<.001$). When the mediating effect of attention was added to this relationship, there was no significant relationship between social competence and early literacy ($\beta: -.04$; $t=-.68$; $p>.05$). This finding suggests that the mediating effect of attention is full. The mediating effect of attention between students' social competence and early literacy was found at .33 and the mediating effect of attention between students' aggression and early literacy was -.21.

The bootstrapping method was used to test the significance levels of indirect effects. In this context, 5000 bootstraps were created in this research. Accordingly, confidence intervals (lower-upper limit) and bootstrap coefficient were obtained. As an acceptance criterion, the fact that the lower and upper limits in the confidence interval do not include zero as a result of the bootstrap procedure indicates that their indirect effects are significant (Hayes 2017). The findings obtained as a result of the analyses made within this scope are shown in Table 7.

Table 7. Bootstrap analysis finding

Independent Variable		Mediating Variable		Dependent Variable	Bootstrap Coefficient (β)	%95 Confidence Interval(Lower-Upper Limit)
Social Competence	-->	Attention	-->	Early Literacy	.33*	[.272, .411]
Aggression	-->	Attention	-->	Early Literacy	-.21*	[-.279, -.149]

* $p<.05$

Table 7 shows that the path social competence indirectly affected early literacy was significant (bootstrap coefficient =.33, 95% GA=.272, .411). Likewise, it was understood that the path aggression indirectly affected early literacy was also significant (bootstrap coefficient =-.21, 95% GA=-.279, -.149). As a result, attention was proven to play a fully mediating role between children's social competence, aggression and early literacy.

DISCUSSION and CONCLUSION

Hypothesis that social competence positively predicts attention was confirmed. It is associated with social competence in the development of attention skills in early childhood. Children with good social competence skills can better recognize and respond appropriately to the cues shown by their peers (Pellegrini, 1991). Social interactions are crucial in the development of attention in early childhood. Attention in early childhood is defined as a social process in which parents and children regulate their behavior with joint or interactive attention (Ruff & Rothbart, 2001). Socially competent children can consider the perspectives of others, maintain their attention to the play task and maintain self-control in conflict situations. Children with social competence behavioral deficiencies are those who are rejected by their peers and often have difficulty focusing their attention and controlling their behavior (Kostelnik, Soderman, Whiren, & Pupier, 2017). Bennett-Murphy, Laurie-Rose, Brinkman, and McNamara (2007) found that positive relationship between children's social competencies and their continuous attention.



Hypothesis that aggression negatively predicts attention has been proved. Childhood aggression tends to be a fixed behavioral trait associated with various persistent psychosocial difficulties such as adult aggression and criminal behavior, as well as social skills deficits and peer rejection. Focusing and sustaining attention requires the coexistence of cognitive, emotional, and motivational resources. Davies, Woitach, Winter, and Cummings (2008) stated that children's attention skills affect aggressive behaviors. Especially aggressive behavior disrupts an individual's self-regulation skills, causing safety concerns. Therefore, aggression is stressful for children, and high levels of stress negatively affect attention performance. The inability to focus and maintain attention is basic feature of aggressive children (De Bellis, 2001). Eck, Flory, and Malone (2013) found that the aggressive behavior of preschoolers predicts attention.

Hypothesis that attention predicts early literacy positively was confirmed. Children with attention problems may have difficulty in focusing on language and literacy skills in the classroom (Haak, Downer, & Reeve, 2012). Children who cannot concentrate benefit less from literacy activities at home and in pre-school classes. Children's decoding skills require attention skills. Delays in decoding skills, on the other hand, delay children's early literacy skills. However, good attention skills allow children to develop good literacy skills by allowing them to develop decoding skills at an early stage (Haak, Downer, & Reeve, 2012). The relevant literature supports the research findings. In the relevant literature, a significant association was found between attention skills in kindergarten and early literacy skills (Welsh, Nix, Blair, Bierman, & Nelson, 2010), this attention is a determinant of later reading ability with its effect on early literacy skills (Lonigan, Burgess, & Anthony, 2000; Rabiner, Godwin, & Dodge, 2016) decreed that there is a significant positive association between attention and phonological and written information in preschool children (Lonigan, Anthony, Bloomfield, Dyer, & Samwel, 1999), attention problems in preschool period predicts phonological awareness and letter knowledge after one year (Walcott, Scheemake, & Bielski, 2010). These findings support the literacy model in which children's attention affects the development trajectory of their literacy skills, and attention affects early literacy skills.

Attention has been found to have a fully mediating role between social competence, aggression and early literacy. This finding obtained in this study reveals the role of executive functions in children's early literacy skills. Executive functions in early childhood are divided into two as hot executive function and cold executive function (Peterson & Welsh, 2014). Cold executive functions require logic and critical analysis (Rubia, 2011) and usually involve the conscious control of thoughts and actions without an emotional component. Hot executive function involves goal-oriented, future-oriented affective-cognitive processes that occur in contexts that create a tension between emotion, motivation and instant gratification and long-term rewards (Zelazo & Carlson, 2012). Attention in this research is related to cold executive function, while social competence and aggression are related to hot executive functions. The full mediator role of attention between social competence, aggression and early literacy reveals that the hot and cold dimensions of executive functions work together in children's early literacy skills, and the role of cold executive functions in hot executive functions. Thus, executive function refers to a set of interrelated and complex high-level cognitive and social behavioral processes. It enables children to maintain attention, keep information in mind, avoid immediate response, manage new information, counteract distraction, think about the consequences of different behaviors, work harmoniously in the face of social demands and plan for the future (Carlson, Zelazo & Faja, 2013; Hughes & Ensor, 2008; McClelland, Acock, & Morrison, 2006). These qualities of executive function can be an important factor in developing children's early literacy skills. Delayed pleasure, one of the hot executive functions, is related to the social aspects of school readiness and school success. Therefore, there are two significant factors in the acquisition of early literacy skills by children in early childhood: cognitive function, which is cold executive function, and social, which is hot executive function (Ladd, Birch, & Buhs, 1999; Mann et al., 2016; Razza & Raymond, 2015).



Conclusion and Recommendations

In this study, the findings showed that social competence predicts attention positively. First, the children who have difficulties in their social competence skills can be identified and then the results can be evaluated by applying training programs to increase the social competence of the children. The findings have shown that attention predicts early literacy positively. The results can be evaluated by applying training programs to increase the attention skills of children with attention deficits. In this research, attention had a fully mediating role between social competence, aggression and early literacy. The results can be evaluated by implementing educational programs to increase the executive functions of children. This study was carried out in Turkey sample. The findings and theoretical explanations of this study can be an important source for cross-cultural comparison studies that are possible in different countries.

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At the meeting of Eskisehir Osmangazi University Social and Human Sciences Human Research Board dated 12.08.2021 and numbered 2021-14, it was decided that the research is in accordance with the human research ethics committee directive.

Limitations

The limitation of this study is data obtained from children in preschool, and the status of the same children in primary school is not determined.

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