

# Reliability of Student Literacy Attitude Inventory (SLAI) Scores<sup>1</sup>

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## Abstract

*The study examined the internal consistency and test-retest reliability of the Student Literacy Attitude Inventory (SLAI) scores. A total of 367 students in grades four, five, and six responded to the SLAI. The data were analyzed by gender, ethnicity, and grade level for each of the SLAI subareas (Listening, Speaking, Reading, Writing, and Self-Perceptions as learners) and for SLAI total scores. The alphas associated with the total SLAI scores ranged from .91 to .94 across gender, ethnicity, and grade level. The test-retest coefficients were not as high as the alphas but were in the .70s for all groups except the male subgroup. These results suggest that the test-retest and alpha reliabilities for the total scores of the SLAI are at an acceptable level and may be useful in assessing the extent to which students respond positively to integrated language arts programs that include multiple strategies for developing literacy. Although the alphas for the Reading, Speaking, and Listening subarea scores tended to be in the .70s, the alphas for the Self-Perception and Writing scores were lower. In particular, the alphas for the Writing subarea were all below .70. Very few of the test-retest coefficients exceeded .70 for the subarea scores across the various subgroups. Several of the test-retest coefficients for the subareas of listening and writing were in the .40s and .50s for some of the subgroups, suggesting little consistency in these subgroups' responses across the seven-day interval of time.*

One of the major factors related to reading achievement is the student's attitude toward reading (Alexander & Filler, 1976; Diamond & Onwuegbuzie, 2001; Groff, 1962; Purves & Beach, 1972; Roettger, Szymczuk, & Millard, 1979; Russ, 1989; Walberg & Tsai, 1985). In general, students who can read on or above-grade-level texts exhibit more positive attitudes toward reading than do students who struggle to read grade-level texts (Lipsky, 1983; McKenna & Kear, 1990; McKenna, Kear, & Ellsworth, 1995; Roettger, 1980). Researchers do not agree, however, on the direction of a possible causal relationship between reading attitude and achievement; some believe that positive reading attitudes produce higher reading achievement (Bettelheim & Zelan, 1981), while others argue that higher reading achievement contributes to positive reading attitudes (Quinn & Jadav, 1987).

Definitions of reading attitude imply direct connections between attitude and various reading

behaviors. Alexander and Filler (1976) defined reading attitude as "a system of feelings related to reading which causes the learner to approach or avoid a reading situation" (p. 1). Smith (1988) defined attitude toward reading as "a state of mind, accompanied by feelings and emotions, that make reading more or less probable" (p. 215). McKenna, Kear, and Ellsworth (1995) point out, however, that a positive global attitude toward reading does not imply a positive attitude toward all kinds of reading because degree of interest in the topic affects one's attitude. More research is needed to clarify the nature of the roles that individual interest and situational interest may play, both separately and interactively on (a) the acquisition of reading attitudes, (b) maintenance of acquired attitudes, and (c) changes in acquired reading attitudes over time (Hidi, 1990; Hidi & Harackiewicz, 2000). Although a number of researchers have proposed models of reading attitude acquisition and the influence of attitude on reading

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behaviors (e.g., Henk & Holmes, 1988; Mathewson, 1976, 1985, 1994; McKenna, 1994; Ruddell & Speaker, 1985; Ruddell & Unrau, 1994), research designed to investigate the efficacy of theoretical reading attitude models is needed to increase our understanding of the nature of the relationship between reading attitude and reading behaviors.

A variety of instruments and assessment approaches have been designed by researchers to measure reading attitude, including questionnaires and surveys (Estes, 1971; Guthrie & Greaney, 1991; Henk & Melnick, 1995; Lewis & Teale, 1980; McKenna & Kear, 1990; McKenna, Kear, & Ellsworth, 1995; Wigfield, Guthrie, & McGough, 1996), guided interviews (Gambrell, Palmer, Codling & Mazzoni, 1995; Guthrie & Seifert, 1983; Mikulecky, 1982), diary techniques, daily-activity records, and reading logs (Allen, Cipielewski, & Stanovich, 1992; Anderson, Wilson, & Fielding, 1988; Greany, 1980; Guthrie, McGough & Wigfield, 1994), and literature recognition (Cunningham & Stanovich, 1990, 1991; Stanovich & Cunningham, 1992; Stanovich & West, 1989). While reliability and validity of scores derived from some of these instruments have been reported in the literature (e.g., Allen, Cipielewski, & Stanovich, 1992; Estes, 1971; McKenna & Kear, 1990), additional study of the reliability and validity of scores derived from these instruments and procedures is needed.

Our interest in assessment of reading attitude focuses on both intrinsic and extrinsic factors which we believe are integral aspects of a student's literacy attitudes. The Student Literacy Attitude Inventory (SLAI), a revised version of the Student Attitude Inventory (Thames & Reeves, 1993, 1994), was developed to provide assessment information related to the learner's: (a) attitudes toward literacy activities which may occur in classroom and/or home environments involving the language arts areas of listening, speaking, reading, writing, and (b) his/her self-perceptions as a learner.

Complicating the study of reading (literacy) attitudes are findings that reading attitudes may be related to gender (Anderson, Tollefson, & Gilbert, 1985; Barnett & Irwin, 1994; Danielson & Tighe, 1994; Kush & Watkins, 1996; McKenna, Kear, & Ellsworth, 1995; Parker & Paradis, 1986; Shapiro 1980, 1990; Stevenson & Newman, 1986; Wallbrown,

Levine, & Engin, 1981), ethnicity (McKenna, Kear, & Ellsworth, 1995; Saracho & Dayton, 1991), and grade level (Anderson, Tollefson, & Gilbert, 1985; Diamond & Onwuegbuzie, 2001; Kush & Watkins, 1996; McKenna & Kear, 1990; McKenna, Kear, & Ellsworth, 1995; Thames & Reeves, 1994). The presence of such relationships suggests the possibility of reliability and validity differences in such groups as well. This study of the reliability of the SLAI scores is the first in a series of planned studies designed to explore the reliability and validity of SLAI scores across a variety of subgroups. Specifically, the purpose of this study was to examine the test-retest and alpha reliability of scores on the SLAI for a sample of students by gender, ethnicity, and grade level.

## Method

### Participants

The participants included 367 students in grades four, five, and six representing four districts and 11 schools in the southern region of Mississippi. The distribution across grades was: 101 in grade four, 102 in grade five, and 134 in grade six. Grade level designation was not available for 30 students. There were 228 African American students and 137 European American students. Ethnicity information was not available for two students. The number of male students was 172 and the number of female students was 195. The reading abilities of the students ranged from very poor to very good. The reading program in 10 of the 11 schools was a basal reading program with some direct instruction, and in the remaining school the reading program was a structured, direct-instruction reading program. Fourth-, fifth-, and sixth-grade classes from one of the schools composed the sample for the test-retest portion of the study, being almost half of the total number of participants.

### Instrument

The initial version of the Student Literacy Attitude Inventory (SLAI) was titled the Student Attitude Inventory (SAI), and it contained 33 items distributed across five subareas: Listening (7 items), Speaking (7 items), Reading (8 items), Writing (6 items), and Self-Perceptions as Learners (5 items).

The SAI was constructed by Thames and Reeves (1993, 1994) in response to the need for an instrument that could serve as a measure of elementary students' attitudes toward language arts activities and their self-perceptions as learners, with results from the instrument to be used by preservice teachers enrolled in a reading practicum course that focused on reading assessment and instruction of elementary students with reading difficulties. The practicum course required each preservice teacher to use the results of an interest inventory and other diagnostic information to select trade books and articles from newspapers and magazines that would interest her/his assigned elementary student and to plan lessons that included listening, speaking, reading, and writing activities related to the content of the selected texts. The items in the SAI were generated from a compilation of statements made by elementary students over a period of four years, who were responding to learning activities presented by preservice teachers during language arts practicum assignments. As the result of field testing over time, some items on the SAI were revised slightly to improve clarity in wording, and one additional item was added to the subarea of self-perceptions as learners; these changes were made based on feedback from elementary students and preservice teachers who were administering the instrument. The authors also decided to insert the word literacy into the title of the instrument to indicate that its focus was on the assessment of literacy attitude, thus the name of the instrument became the Student Literacy Attitude Inventory (SLAI).

The SLAI contains 34 items distributed across five subareas: Listening (7 items), Speaking (7 items), Reading (8 items), Writing (6 items), and Self-Perceptions as Learners (6 items). The items on the SLAI are presented as questions, such as "How do you feel when someone reads a story to you?" (Listening), "How do you feel when someone asks you to tell about something that has happened to you or something that you have done?" (Speaking), "How do you feel when you are asked to read written directions and the teacher does not explain them?" (Reading), "How do you feel when you are writing a note to a friend or parent and you do not know how to spell a word?" (Writing), and "How do you

feel when you are asked to complete an assignment alone?" (Self-Perceptions as Learners). A series of five face illustrations (ranging from a big smile to a big frown) follow each question, so that a respondent may mark the face that best represents his or her feelings. A complete list of the SLAI items is listed in the Appendix.

The SLAI may be group- or individually-administered, with the teacher or proctor reading aloud each item. Students are told that the face illustrations, which are located below each question, represent the following moods: "very happy," "a little happy," "neither happy nor sad," "sad," and "very sad." After hearing each question, the student circles (or marks) the face that most closely represents his or her feelings about the question. The SLAI is scored using a Likert scale: "very happy" face = 5 points, "happy" face = 4 points, "neither happy nor sad" face = 3 points, "sad" face = 2 points, and "very sad" face = 1 point. Subarea and total SLAI scores are obtained by first summing item responses for each subarea and then summing subarea scores to obtain a total score. Maximum possible subarea scores are 35 (Listening), 35 (Speaking), 40 (Reading), 30 (Writing), and 30 (Self-Perceptions as Learners), with a maximum possible total score of 170.

Thames and Reeves (1994) reported alpha coefficients for the five subareas of the SAI as follows: .74 (Listening), .74 (Speaking), .82 (Reading), .77 (Writing), and .74 (Self-Perceptions as Learners), with .93 being the alpha coefficient for the overall (total) score. The validity of the SAI was examined by correlating the total SAI scores obtained on a sample of 47 elementary students with their total scores on the Elementary Reading Attitude Survey (ERAS), authored by McKenna and Kear (1990), and the obtained Pearson product moment correlation coefficient was .44 ( $p < .002$ ), which was considered adequate since the two instruments were measuring different aspects of attitude. Recently, Hayes (2003) reported that significant Pearson product moment correlations ( $p < .01$ ) were obtained between SLAI total scores and several measures, based on a sample of 62 second-grade students: the ERAS/recreational scores ( $r = .55$ ), the ERAS/academic scores ( $r = .67$ ), the Motivational Reading Profile Reading Survey (MRPRS, by Gambrell, Palmer, Codling, & Mazzoni,

1996) total scores ( $r = .54$ ), the MRPRS scores from the reading survey component ( $r = .44$ ), and the MRPRS conversational interview scores from the general reading component ( $r = .45$ ).

### Procedures

Permission was granted through the participating school districts' central offices to administer the SLAI to students in grades four, five, and six. The SLAI was administered to classes of students as a group by university faculty and graduate students in the field of literacy education who had been trained to administer the instrument. For test-retest purposes the SLAI was administered on two occasions with a seven-day interval between administrations. Anonymity of student responses was achieved by pre-assigning numbers to students on class rosters and distributing the SLAI instruments to students using the class roster, so that absent students' forms were not distributed; students were instructed not to write their names on the instrument. Prior to administering the SLAI, the proctor explained that the purpose of the inventory was to study students' thoughts and feelings about reading and in no way was this a test with correct or incorrect responses. The meanings of the face illustrations that appeared below each question were explained. The students were instructed to mark an "X" on the face that corresponded to their feelings when considering each question. A sample question was read aloud and the meanings of the face choices were reviewed. After answering students' questions related to the procedures they were to follow, the proctor began administering the inventory by reading aloud each question, pausing after each question to allow time for each student to mark a response. The same procedures were followed for the retest administration of the inventory with the proctor first explaining the purpose for obtaining their responses to the SLAI and then reminding students that it was very important for them to answer the questions based on their present feelings rather than attempting to match their previous responses.

### Analysis of Data

Internal consistency reliability was estimated using Cronbach's (1951) coefficient alpha, and test-

retest reliability was estimated using the Pearson product-moment correlation between scores obtained from the first and second administrations of the SLAI. The interval between administrations was seven days. Coefficient alpha was calculated using scores from the first administration of the SLAI. Cronbach's alpha and test-retest coefficients were obtained by gender, ethnicity, and grade level.

### Results

Means and standard deviations by gender, ethnicity, and grade level for SLAI total scores and subarea scores (i.e., Listening, Speaking, Reading, Writing, Self-Perceptions as Learners) for the initial administration are presented in Table 1. The alpha coefficients associated with these scores are presented in Table 2. The alpha coefficients for the total SLAI scores were high ranging from .91 and .94 for various groups of students. In general, the alphas for the Listening, Speaking, and Reading subarea scores were in the .70s across subgroups. The alphas for the Self-Perceptions as Learners subarea scores were somewhat lower with three of the seven coefficients in the .60s. None of the alphas for the Writing subarea scores exceeded .70. Alphas for the total group were in the .70s for all subareas except for Writing (.638). The total-group alpha for the total score was high, being .93.

Means and standard deviations for those responding to both administrations of the SLAI are presented in Table 3. Little change in mean scores was observed over the seven-day interval for any of the subgroups.

SLAI total score test-retest coefficients exceeded .70 for all subgroups except for males (.67) with the highest coefficient being .80 for the grade five respondents (Table 4). Nearly all test-retest coefficients for the subarea scores across subgroups were below .70. The coefficients ranged from .44 for the Listening subarea scores for males to a high of .74 for the Speaking subarea scores of the respondents of grade five. Subarea test-retest coefficients for the total sample ranged from .52 for the Listening sub-area to .67 for the Speaking subarea. The total SLAI coefficient for the total sample was .74.

**Table 1**  
**Means and Standard Deviations for the Student Literacy Attitude Inventory (SLAI)**  
**by Ethnic Group, Gender, and Grade Level: Initial Administration**

Group	SLAI Subarea										SLAI Total	
	Listening		Speaking		Reading		Writing		Self-Perception		M	S
	M	S	M	S	M	S	M	S	M	S		
African American <sup>a</sup>	24.97	4.82	26.48	5.80	30.09	6.12	21.51	5.54	23.04	5.17	126.09	23.12
European American <sup>b</sup>	26.95	4.74	27.49	5.19	30.18	5.73	21.53	4.46	24.17	3.93	130.31	20.61
Females <sup>c</sup>	26.18	4.71	27.30	5.21	30.87	5.60	21.65	4.28	23.92	4.32	129.92	20.37
Males <sup>d</sup>	25.09	5.09	26.32	6.01	29.29	6.25	21.33	4.78	22.88	5.26	124.06	23.58
Grade Four <sup>e</sup>	25.51	4.82	25.41	5.85	28.88	6.45	21.37	4.82	22.90	5.41	124.06	23.58
Grade Five <sup>f</sup>	25.88	5.17	27.59	5.22	31.37	5.79	22.06	4.49	23.83	4.48	130.74	22.18
Grade Six <sup>g</sup>	24.79	4.74	26.99	5.50	30.30	5.61	21.04	4.24	23.34	4.79	126.46	21.67

<sup>a</sup> n = 228; <sup>b</sup> n = 137; <sup>c</sup> n = 195; <sup>d</sup> n = 172; <sup>e</sup> n = 101; <sup>f</sup> n = 102; <sup>g</sup> n = 134

**Table 2**  
**Cronbach's Alphas for the Student Literacy Attitude Inventory (SLAI)**  
**by Ethnic Group, Gender, and Grade Level**

Group	SLAI Subarea					SLAI Total
	Listening	Speaking	Reading	Writing	Self-Perception	
African American <sup>a</sup>	.658	.774	.740	.624	.739	.925
European American <sup>b</sup>	.784	.753	.766	.662	.613	.923
Females <sup>c</sup>	.705	.739	.717	.603	.652	.911
Males <sup>d</sup>	.727	.791	.771	.670	.755	.935
Grade Four <sup>e</sup>	.663	.748	.748	.651	.728	.935
Grade Five <sup>f</sup>	.743	.727	.735	.619	.666	.924
Grade Six <sup>g</sup>	.721	.785	.746	.598	.736	.927
Total Group	.720	.767	.749	.638	.708	.925

<sup>a</sup>n = 228; <sup>b</sup>n = 137; <sup>c</sup>n = 195; <sup>d</sup>n = 172; <sup>e</sup>n = 101; <sup>f</sup>n = 102; <sup>g</sup>n = 134

**Table 3**  
*Student Literacy Attitude Inventory (SLAI) Means and Standard Deviations by Ethnic Group, Gender, and Grade Level: Initial and Retest Administrations*

Group	Adm.	SLAI Subarea										SLAI Total	
		Listening		Speaking		Reading		Writing		Self-Perception		M	S
		M	S	M	S	M	S	M	S	M	S		
Afri. Am. <sup>a</sup>	Initial	26.11	3.73	27.88	4.04	31.88	4.02	22.48	3.68	24.67	3.43	133.02	13.91
	Retest	25.24	4.42	27.16	4.74	30.25	5.67	22.23	4.09	24.28	3.84	129.43	18.70
Euro. Am. <sup>b</sup>	Initial												
	Retest												
Females <sup>c</sup>	Initial	26.44	3.74	27.70	4.04	32.15	3.99	21.97	3.71	24.70	3.18	132.95	13.91
	Retest	25.37	4.12	26.86	4.81	30.51	5.32	22.18	4.12	23.95	4.07	128.87	18.69
Males <sup>d</sup>	Initial	25.78	3.73	27.99	4.21	31.49	4.09	22.83	3.80	24.74	3.77	132.83	14.62
	Retest	25.37	4.12	27.28	4.95	30.35	6.15	22.07	4.17	24.42	3.86	129.25	19.90
Grade 4 <sup>e</sup>	Initial	27.04	3.90	27.40	4.35	32.00	4.25	23.17	3.75	24.98	3.84	134.58	14.69
	Retest	24.74	5.09	25.36	5.93	28.17	6.58	21.43	4.44	23.45	4.49	123.15	22.87
Grade 5 <sup>f</sup>	Initial	25.88	4.04	27.70	4.23	32.78	4.50	22.74	3.87	24.82	2.97	133.92	15.09
	Retest	25.62	4.76	27.86	4.58	32.74	5.14	23.32	4.17	24.82	3.98	134.36	18.24
Grade 6 <sup>g</sup>	Initial	25.78	3.42	28.33	3.79	31.22	3.61	21.62	3.74	24.60	3.48	131.55	13.94
	Retest	25.67	3.56	27.90	3.83	30.82	4.36	21.85	3.81	24.17	3.58	130.40	15.74

<sup>a</sup>n = 147; <sup>b</sup>group size too small for meaningful results; <sup>c</sup>n = 87; <sup>d</sup>n = 69; <sup>e</sup>n = 53; <sup>f</sup>n = 50; <sup>g</sup>n = 60

**Table 4**  
**Test-Retest Coefficient for the Student Literacy Attitude Inventory (SLAI)**  
**by Ethnic Group, Gender, and Grade Level**

Group	SLAI Subarea					SLAI Total
	Listening	Speaking	Reading	Writing	Self-Perception	
African American	.461	.643	.557	.527	.613	.701
European American	Insufficient data for calculation					
Females	.541	.713	.662	.609	.676	.771
Males	.444	.591	.477	.495	.562	.672
Grade Four	.481	.642	.601	.550	.625	.763
Grade Five	.592	.735	.654	.591	.625	.801
Grade Six	.561	.661	.615	.639	.665	.788
Total Group	.515	.665	.605	.578	.616	.743

### Discussion

The alpha coefficients for the total scores from the SLAI were found to be consistently high across the subgroups studied. All alphas were in the .90s. The total score test-retest reliabilities, though not as high as the alphas, were in the .70s for all but the male subgroup. The total score test-retest coefficient for the total group was .74. The reliability of the total scores, therefore, appears to be quite good.

The reliability estimates for the subarea scores were not as high as those found for the total scores. Although the alphas for the Reading, Speaking, and Listening subarea scores tended to be in the .70s, the alphas for the Self-Perceptions as Learners subarea and the Writing subarea scores were notably lower. In particular, the alphas for the Writing subarea were all below .70. Very few of the test-retest coefficients exceeded .70 for the subarea scores across the various subgroups. Nearly one-half of the test-retest coefficients were in the .40s and .50s, suggesting little consistency in responses across the seven-day time period.

Although the SLAI was developed to encompass the breadth of literacy, via the components of listening, speaking, reading, writing, speaking, and learner self-perceptions, total SLAI scores have

resulted in higher alpha coefficients and higher test-retest coefficients than were found for the total reading attitude scores on the popular Elementary Reading Attitude Survey (Flynn, Taylor, Beard, Turnbo, & Kazelskis, 2001). Flynn *et al.*, found ERAS total score alphas in the upper .80s, and seven-day test-retest coefficients that were generally in the .50s and .60s across subgroups comparable to those used in the present study.

The findings of this study contribute to the reading attitude literature in some specific ways. First, there is evidence that SLAI total scores are reliable at an acceptable level for research purposes. Second, SLAI subarea scores may be useful to teachers who seek information about how individual students may respond to specific kinds of literacy activities in each of the language arts areas. Third, the SLAI offers educators and researchers a measure of literacy attitude that is based on a sociocultural perspective of literacy development by including specific language arts activities that typically occur in the contexts of classroom, home, and/or community.

Based on the reliability estimates obtained in this study, it is recommended that total SLAI scores be used for group assessments and instructional plan-

ning purposes. While subarea scores may be useful to classroom teachers in providing information about an individual student's attitudes toward specific kinds of literacy activities, further refinement of the subarea items is needed before the separate subarea scores are used as the basis for changes in instructional programs offered in elementary schools.

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**Appendix**  
Items composing the Student Literacy Attitude Inventory (SLAI)\*

(Subarea: Listening)

1. How do you feel when someone reads a story to you?
2. How do you feel when someone offers to read to you a story you like?
3. How do you feel when someone reads a story to you that you have heard before?
4. How do you feel when you are asked to listen to someone tell a story?
5. How do you feel when you are asked to predict the ending of a story before having the ending read to you?
6. When you are listening to a conversation, or a story being read, and you hear a word that you do not know, how do you feel?
7. How do you feel when your teacher tells you the steps to follow in an activity rather than having you read the steps?

(Subarea: Speaking)

1. How do you feel when someone asks you to tell about something that has happened to you or something that you have done?
2. How do you feel when you are asked to read aloud?
3. How do you feel when you are encouraged to ask questions?
4. How do you feel when you are asked to tell your teacher a story you have heard or read?
5. How do you feel when someone asks you to describe how to do something or how to get somewhere?
6. How do you feel when you are given the opportunity to tell someone about a story that you have read?
7. How do you feel when you are given the opportunity to pretend to be a character in a story?

(Subarea: Reading)

1. How do you feel when you are given an opportunity to read the cartoons in the newspaper or comic books?
2. How do you feel when you have the opportunity to read magazines?
3. How do you feel when you are given the opportunity to read about something in the newspaper?
4. How do you feel when you are asked to read written directions and follow them without the teacher's help?
5. How do you feel when are asked to read a grocery list?
6. How do you feel when you are asked to locate a name and number in your phone book?
7. How do you feel when you are asked to read a poem?
8. How do you feel when you read a note that lists things you need to do, as a reminder for you? (If needed for clarity, proctor may add: "For example, make you bed, play outside, call to let someone know you are home, etc.")

(Subarea: Writing)

1. How do you feel when you are asked to take notes in class?
2. How do you feel when someone at home asks you to make a list of things that are needed? (If needed for clarity, proctor may add: "For example, make a list of foods that are needed from the grocery store, make a list of the clothes that you will need to take on vacation, make a list of errands that you must do, etc.")
3. How do you feel about drawing pictures and labeling them or writing a sentence about them?
4. How do you feel when you do not know how to spell a word when you are writing?
5. How do you feel about writing a note to a friend?
6. How do you feel when your teacher asks you to write a story?

(Subarea: Self-Perceptions as Learners)

1. How do you feel when you are asked to work on an assignment with two or three other classmates?
2. How do you feel when you are asked to complete an assignment alone?
3. How do you feel when you are asked to be the leader of a group activity?
4. How do you feel when your teacher asks you to draw or map-out, all by yourself, what you have learned about a subject?
5. How do you feel when your teacher asks you to work with two or three other classmates to create a map or activity to show what you have learned?
6. How do you feel about doing school assignments and activities?

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\*To request permission to use the SLAI, and a copy of it, please contact Dana G. Thames and Carolyn Reeves at: Department of Curriculum, Instruction, and Special Education, USM, Box 5057, Hattiesburg, MS 39406-5057.