*Volume 8, 2005*
*ISSN: 1523-4320*

*Approved October 2005*
www.ala.org/aasl/slr

# A Crosscultural Inquiry into the Levels of Implementation of Accelerated Reader and Its Effect on Motivation and Extent of Reading: Perspectives from Scotland and England

Nancy Everhart, Associate Professor/Director, School Library Media Program, College of Information, Florida State University, Tallahassee

*In this study of the Accelerated Reader (AR) program, qualitative and quantitative analyses of the relationship between the implementation of AR and student motivation and extent of reading are drawn from data collected in three schools in Scotland and England. These schools represent low (Scotland,* n= *53), middle (Scotland,* n= *40), and high (England,* n= *55) levels of implementation of AR. Observation, structured interviews with students and teachers, videotaped student focus groups, a student survey on self-reported reading, examination of AR artifacts, and administration of the Motivation for Reading Questionnaire are used to gather data. Major findings reveal that: motivational style interacts with gender in relation to the competitive and social aspects of the AR program; the level of program implementation does not correlate with*

and for some, a growing realization that they are not as capable as others. Instructional practices that focus too much on competition and social comparison between children and make little attempt to spark children's interests in different topics can lead to declines in intrinsic motivation and increases in extrinsic motivation (Eccles, Wigfield, and Schiefele 1998).

A review of the research (Harlen and Crick 2002) on the impact of summative assessment and testing on students' motivation for learning after the introduction of the National Curriculum Tests in England has the following findings related to this study: low-achieving pupils had lower self-esteem than higher-achieving pupils while there was no correlation between self-esteem and achievement prior to this; and a great emphasis on evaluation produces students with strong extrinsic orientation towards grades and social status.

Tangible rewards as motivational tools are often associated with the use of the AR program in the United States and this practice has been criticized (Kohn 1993; Carter 1996) as actually leading to diminished motivation in reading. A study by Vollands, Topping, and Evans (1999) found that even socio-economically disadvantaged elementary students in Scotland were totally disinterested in any tangible rewards, but they were highly motivated by the individualized performance feedback inherent in the program. Nontangible incentives of teacher praise and constructive feedback have proven more motivational than tangible rewards (Cameron and Pierce 1994).

## Implementation

Topping (1999; Topping and Sanders 2000; Topping and Fisher 2003) studied the implementation of AR in Scotland and England and has concluded that the effectiveness of AR might be influenced by variability in hardware and software configurations, nature and intensity of program use, level of teacher ability and interest in the program, degree of teacher training and support, and other human factors. However, on average across all schools studied, even those in socio-economically disadvantaged areas, gains on standardized tests in AR classrooms were in excess of normal rates and statistically significant. Implementation integrity varied a great deal, with only one school approximating implementation of the program as recommended by the manufacturer, but showed high gains on reading achievement tests.

The research reported in this paper does not address effectiveness of the AR program but rather focuses on the less examined areas of links between the implementation of AR, reader motivation, and reaction to AR.

## Educational and Cultural Differences

Varied educational policies and cultural influences in Scotland and England allowed for study of the implementation of AR in diverse settings and to further investigate its impact on student motivation where it has been maintained that extrinsic rewards for reading would generally be considered inappropriate, if not unacceptable (Topping 1999).

Distinctions between the English and Scottish educational systems should be noted. As a result of the Education Reform Act of 1988, the National Curriculum is compulsory in England (British Broadcasting Corporation 2005a). Formulated and monitored by the Qualifications and Curriculum Authority, the aim of the curriculum is to raise standards and to ensure that schools

around the country are following the same courses. The National Curriculum also introduced key-stage tests, popularly known as "SATs," which are similar to high-stakes testing required by the No Child Left Behind Act in the United States. Children take national tests en masse at the ages of seven, eleven, and fourteen in reading, writing, and mathematics. Data that compare schools, often referred to as performance or league tables, are published in the newspaper for the purpose of informing parents. Scotland has a comprehensive education system. It is distinctive particularly for its flexible curriculum, which is not set by law. What and how students are taught is based on guidelines prepared by Learning and Teaching Scotland on behalf of the Scottish Executive. This flexibility is reflected in the management and funding of schools, which has been largely devolved to head teachers (British Broadcasting Corporation 2005b). As, wh

- limited and appropriate use of rewards; and
- time allocated for reading practice.

A primary school with 8 percent of their students on free lunch and located in a suburban area of England, was identified as high implementation. The AR program has been used for nine years, evolving into the school's entire reading program for third grade and beyond. This is the first installation of AR in a U.K. school, which was a direct result of teachers in this school being introduced to the program by visiting a nearby American school on a U.S. air base. One senior female teacher, trained by Renaissance Learning, has assumed leadership for the program. She oversees the training of other teachers, and has created a nurturing environment resulting in a high level of teacher ability and support. Teachers monitor reading progress intensely. Most (but not all) teachers used the STAR diagnostic function of AR to determine a student's initial reading level and to set reading targets. More experienced teachers intervene and customize student targets based on their knowledge of the student. Teachers also use the class diagnostic and student pupil record report. Two twenty-minute periods of silent sustained reading are set aside each day

school was not observed in this school but a culture of ownership was observed. Students took responsibility for meeting their targets and enjoyed using the system on their own and being evaluated by a computer that was deemed impartial.

In the low-level implementation school, a secondary school, language arts teachers in ninth and tenth grade who incorporate student performance into their term grade had been using AR for only one year. In this school, with 24 percent of students on free lunch, AR is used as homework and students are required to read one AR book every two weeks. Teachers employ class diagnostic reports and the head of the English department examines summary reports, although students are not initially tested to determine their reading levels or to set reading targets. Books are housed in a modern school library, staffed by an MLS librarian and a tech who oversee book purchasing and processing but not program administration. Currently, 718 AR books are tagged in the automated circulation system, identified with orange stickers, and integrated with the rest of the library collection on the shelves. Students take AR quizzes on library computers. Library staff expressed displeasure in having responsibility for monitoring test taking and using budget funds for AR books, noting that many new and quality AR titles sit on the shelves and that they have observed cheating on AR quizzes. A structured rewards system is in place whereby students get pens, highlighters, and book tokens for successfully passing a predetermined number of quizzes.

## Data Collection and Analysis

Observation, structured interviews with students and teachers, videotaped student focus groups, a student survey on self-reported reading (appendix A), examination of AR artifacts, and administration of the Motivation for Reading Questionnaire (MRQ) (Wigfield and Guthrie 1997) (appendix B) were used to gather data. The MRQ measures the following dimensions of reading motivation: efficacy, challenge, curiosity, involvement, importance, recognition, grades, social, competition, compliance, and work avoidance. By combining the dimensions of curiosity, involvement, and efficacy an intrinsic motivation variable was calculated and by combining the scores on the recognition, grades, and competition scales, an extrinsic motivation variable was calculated. In addition to MRQ items, students were asked to respond in the survey to gender, age, and opinions of AR. AR reports were examined 0.003 Tw 4(t)-2(2* [(c6d(l)-2(e1(c)4(a)4(l)-2(t)-2(i

extrinsically. But, because no specific motivational style could be associated with a particular student, it is also difficult to align a motivational style with a specific student opinion.

Table 3. Gender differences in opinions of AR

| | Opinion of AR | | | |
|---|---|---|---|---|
| Sex | Dislike | No feelings | Like | Totals |
| Female | | | | |

Table 4. Level of implementation and opinion of AR—Chi Square

| | Level of implementation | | | |
|---|---|---|---|---|
| Opinion of AR | Low | Medium | High | Totals |
| Dislike count (% of Total) | 12 (8.1) | 8 (5.4) | 11 (7.4) | 31 (20.9) |
| No feelings count (% of Total) | 8 (5.4) | 7 (4.7) | 5 (3.4) | 20 (13.5) |
| Like count (% of Total) | 33 (22.3) | 25 (16.9) | 39 (26.4) | 97 (65.5) |
| Totals count (% of Total) | 53 (35.8) | 40 (27.0) | 55 (37.2) | 148 (100.0) |

Chi square=1.86, 4 d.f., $p<0.05$

There is no relationship between students' opinions of AR and level of implementation (Chi square = 1.86, 4 d.f., $p>0.05$) as shown in table 4. Opinions of AR are very similar regardless of how it is implemented. In the focus group interviews, teachers noted that students like being responsible for their own learning and being evaluated by a computer that was deemed impartial. AR is also a novelty in the United Kingdom—very few schools have it and these students may feel they have something special in their classrooms, even if it is not implemented at the highest level.

# Conclusions

Conclusions drawn from the U.K. data sets in this cross-cultural, cross-methodological study provide the impetus for further research.

The data support the conclusion that motivational style interacts with gender in relation to the competitive and social aspects of the AR program. One might conclude that AR prizes are more effective with boys, but that boys are equally motivated by praise and recognition, and that girls are motivated more by discussing books and reading with others and generally like the AR program better. In the area of knowledge management, the data leads to the conclusions that teachers tend to ignore the many possible AR reports, thus neglecting data that could be used for reading guidance, and that level of program implementation (high, medium, or low) does not correlate with breadth of reading. These conclusions prompt seeking comparable U.S. schools and probing, along with knowledge management issues, how students' opinion toward the AR extrinsic rewards and the program in general might differ between boys and girls or whether this is more of a culturally specific finding given the less competitive nature of AR program implementation in the United Kingdom.

## School Library Media Specialists

Findings from this motivation and implementation study can be applied to school library media specialists in the United States in several areas. For those already serving as AR managers, contributions can be made to the effective implementation particularly in the area of book selection, reading guidance and motivation, organization of materials, and staff professional development. In each of the schools, the teachers found it difficult to coordinate the numbers of tests and books—for many tests there are no books available and for books students wanted to read there are no tests available. School library media specialists can facilitate this effort by synchronizing their AR database, encouraging Renaissance Learning to be more responsive to recent book releases, and constructing in-house quizzes or training teachers in the process

option that has mostly gone unrealized. It has been established in this and other studies that more simple recognition for reading such as names on display can be more highly motivating than complex and expensive extrinsic prize structures (Everhart 1999). One highly visible area for maintaining such a display is in the school library media center. The media center can also serve as a student ownership space whereby students can independently select books and take quizzes. On a higher level, school library media specialists can serve as knowledge managers to collaborate closely with teachers in utilizing and interpreting the myriad of reports available and incorporating motivational techniques.

School library media specialists who do not have the AR program can employ findings from this study that are not software dependent. They can collaborate with teachers to set individual reading goals for students and develop a responsive collection. Because girls were found to enjoy the more social aspects of reading, school library media specialists can instigate book discussion groups for girls, and provide social areas whereby girls might recommend books to friends. Promotional programs that involve famil4(nt)-2(f)3(t)-2(w)onal5(om)2(ot)2(i21d)-10(y)20( )2chool librar

# Appendix A.

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# Appendix B. Motivation to Read Questionnaire

Circle one answer for each question using these answers:
1. Very different from me
2. A little different from me
3. A little like me
4. A lot like me

1. I visit the library often with my family. 1 2 3 4
2. I like hard, challenging books. 1 2 3 4
3. I know that I will do well in reading next year. 1 2 3 4
4. I do as little schoolwork as possible in reading. 1 2 3 4
5. If the teacher discusses something interesting I might read more about it. 1 2 3 4
6. I read because I have to. 1 2 3 4
7. I like when questions in books make me think. 1 2 3 4
8. I read about my hobbies to learn more about them. 1 2 3 4
9. I am a good reader. 1 2 3 4
10. I read stories about fantasy and make believe. 1 2 3 4
11. I often read to my brother or sister. 1 2 3 4
12. I like being the only one who knows an answer in something we read. 1 2 3 4
13. I read to learn new information about topics that interest me. 1 2 3 4
14. My friends sometimes tell me I am a good reader. 1 2 3 4
15. I learn more from reading than most students in my class. 1 2 3 4
16. I like to read about new things. 1 2 3 4
17. I like hearing the teacher say I read well. 1 2 3 4
18. I like being the best at reading. 1 2 3 4
19. I look forward to finding out my reading grade. 1 2 3 4
20. I sometimes read to my parents. 1 2 3 4

21. My friends and I like to trade things to read. 1 2 3 4

22. It is important for me to see my name on a list of good readers. 1 2 3 4

Circle one answer for each question using these answers:
1. Very different from me
2. A little different from me
3. A little like me
4. A lot like me

23. I don't like reading something when the words are too difficult. 1 2 3 4

24. I make pictures in my mind when I read. 1 3 2 4

25. I always do my reading work exactly as the teacher wants it. 1 2 3 4

26. I usually learn difficult things by reading. 1 2 3 4

27. I don't like vocabulary questions. 1 2 3 4

28. Complicated stories are fun to read. 1 2 3 4

Tw [(r) 2 3 4 29. I am happy when someone recognizes my re

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