

Accelerated Reader: Does it Work? If So, Why?

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Accelerated Reader (AR) is a reading management program in which children are provided with adequate access to books, read books which they select themselves, earn points by taking quizzes on the content of the books, and are given prizes in exchange for the points. There are numerous informal reports of success with AR, and the company that produces AR has provided a number of case histories that appear to show that AR increases reading achievement. Does, in fact, AR really produce higher levels of reading achievement? If it does, which aspects of AR are responsible for the gains?

There is overwhelming evidence that two aspects of AR do indeed result in substantial gains: Providing access to comprehensible and interesting books.

Providing more access to books results in more reading

Extensive research confirms that when readers are provided access to comprehensible and interesting reading material, they read more (Krashen, 1993). Children who participate in SSR (sustained silent reading) programs read more on their own than those who do not (Pilgreen and Krashen, 1993) even years after the SSR program is over (Greaney and Clarke, 1975). Studies show that students participating in SSR sessions actually read during these sessions. Von Sprecken and Krashen (1999) reported that 90% of middle school children observed during SSR were actually reading when SSR classes were visited in the middle of the school year (see also Cohen, 1999; Herda and Ramos, 2001).

Increasing recreational reading increases reading achievement

Research also consistently shows that increasing recreational reading profoundly increases reading ability and literacy development in general. In Krashen (2001a) I reviewed the research on sustained silent reading and concluded that children in these programs did as well or better than comparisons on tests of reading comprehension in 51 out of 54 comparison. When studies lasted for a year or longer, students in sustained silent reading were better in ten out of twelve comparisons, with no difference in two. This result is in agreement with correlational studies showing those who read more read better, as well as with compelling case histories, in which is clear that free voluntary reading was responsible for remarkable gains in literacy (e.g. Richard Wright, Malcolm X, Ben Carson, as described in Krashen, 1993).

Research on Libraries

Current research on the impact of school libraries confirms that more access to books results in more reading, which in turn results in better reading: better libraries, those with more books and better staffing, result in more literacy development. States that report more books per child in their school libraries have higher NAEP reading comprehension scores (Krashen, 1993; McQuillan, 1998), a finding that persists even when the effects of poverty are controlled (McQuillan, 1998). Studies done within individual states show similar results (e.g. studies by Lance and his colleagues, reviewed in Krashen, 2001b).

Testing children on their reading: no research

No study to my knowledge has attempted to test the hypothesis that testing children on their reading, per se, has a positive effect.

Rewards: no support

A few studies have investigated the impact of providing rewards on the amount children read. One study (McLoyd, 1979) controlled for other variables and found that rewards actually inhibited reading.

McLoyd (1979) asked second and third graders to read from “high interest” books under three conditions: a “high reward,” “low reward” and “no reward” condition. In the high reward condition, children were promised a reward that they rated the most highly out of six presented. In the low reward condition, children were promised a reward that they rated the least highly out of six presented (Accelerated Reader can be considered a high reward system, because children can exchange points for a wide variety of prizes).

It was explained to the children that the reward would be granted if they read until they reached a page following a marker in the book indicating 250 words and that the experimenter was interested in their opinion of the book. Rewards were not mentioned to the children in the no reward condition; rather, they were simply asked to read up to the indicated place in the text and to then give their opinion of the book. The reading sessions lasted for ten minutes. (1)

Table 1: Rewards and reading

group	time spent reading	% total time	words read	difference
high reward	195.22 sec	33%	269.89	467.22
low reward	232.56 sec	39%	301.11	436
no reward	465.11 sec	78%	737.11	

The difference between the two rewarded groups was not statistically significant. But both rewarded groups clearly differed from the non-rewarded group.

As indicated in table 1, the rewarded groups clearly read only what they had to in order to get the reward, barely going beyond the 250 word maker. The no-reward readers went well beyond this point; they were engaged in reading about twice as much than the two rewarded groups, and read more than twice as much.

McNinch (1997) reported that rewarded children read a great deal, but showed no change in reading attitudes: These children, however, also were provided with increased access to books. Here are the details: Twenty at-risk second and third graders from low-income families participated in an Earning By Learning (EBL) program in summer school, which they attended for half-days over six weeks.

Each child was paid \$2.00 for each book read. We do not know if there was any means of ensuring that the children read the books. In addition, children were given increased access to

books - in fact, "volunteers drove the children to the local library on an almost daily basis" (p. 188)."

The group of 20 children read 829 books in six weeks and earned a total of \$1,658, an average of \$82.50 per child, a considerable sum for a second or third grader from a low-income family. We are not told what counted as a book, nor are any examples provided.

It is not surprising that children took well to the financial rewards: the group consisted of poor children who were offered a substantial amount of money.

McNinch concluded that EBL "seems to be effective" in increasing attitudes (p. 190). This claim is clearly unjustified in terms of the actual gains: McNinch administered the McKenna and Kear Elementary Reading Attitude Survey at the beginning and end of the summer. Scores hardly budged. Students moved from 2.8 at the beginning to 3.1 at the end for overall reading, a very small improvement (the scale was from one to four).

It must also be pointed out that these children were positive about reading before the summer began. Their scores on the attitude test were nearly exactly at the national average reported by the developers of the test (McKenna, Kear and Ellsworth, 1995). There is thus no evidence that these children were unmotivated readers. As children of poverty, it is likely that they previously had little access to books. More access, without the cash, could have been enough to stimulate more reading.

There is, thus, clear evidence in favor of two components of AR: providing access to books and doing more reading, but nothing in favor of the other two components: tests and rewards.

Studies of Accelerated Reader

Research done on AR and similar programs per se does nothing to change this picture. A number of studies have attempted to determine whether those participating in AR programs show gains on standardized tests or do better than control groups experiencing traditional instruction; many, in fact, are available on the Renaissance Learning website (www.renlearn.com). Most (but not all) of these studies do indeed show that children improve in reading comprehension. These studies, however, treat AR as a whole. As McQuillan (1997) has pointed out, we do not know which aspects of the incentive program were responsible for the gains. The positive results are fully consistent with the hypothesis that it is the increased access to books and reading that causes the gains, not the tests and awards.

Not all of these studies, in fact, show that AR is effective. Goodman (1999) reported that AR students gained only three months over an academic year on standardized tests of reading comprehension. In one of the reports on the Renaissance website (Report 36), AR was done in two middle school classrooms for one year. One class showed gains, the other did not. Mathis (1996) compared progress with AR for a group of sixth graders with gains made by the same students the year before and found no difference. It could be argued that the duration of these studies was not long enough to show the impact of AR: Recall that impact of sustained silent reading is much greater when studies are long term (Krashen, 1993, 2001a). This does not help explain the results of the next study, however.

Pavonetti, Brimmer, and Cipiowski (2000) administered the Title Recognition Test to seventh graders in three districts. The Title Recognition Test is a checklist that correlates highly with other measures of reading exposure as well as with various measures of reading achievement. For all three districts combined, Pavonetti et. al. reported no difference between those children who had had AR and those who had not. All AR students experienced AR for at least two years. It could have been the case that non-AR schools had equivalent access to reading and reading time.

The only controlled study

Only one study has attempted to deal with the issue of what aspect of AR is effective. It appears in two versions: Vollands, Topping and Evans (1996) is an ERIC report, while Vollands, Topping and Evans (1999) is a slightly abbreviated version appearing in *The Reading and Writing Quarterly*. The report included two independent studies, each lasting six months. In both cases, it is claimed that AR was compared to a group that did recreational reading.

Project A

This study involved very few children, especially in the comparison group (n = 12; there were 27 in the experimental group). All were 11 years old. Comparisons had 30 minutes per day of “reading time” (Vollands et. al., 1999, p. 203), but had to give “written feedback on book completion to the teacher on what they read.”

The AR group in Project A (n = 27) had 15 minutes of reading time per day for the first five weeks of the project, which was then increased to 30 minutes per day. Students were also read to for 30 minutes per day, and were allowed to take AR tests on books read to them. Since it is firmly established that readalouds have a positive effect on literacy development (Blok, H. 1999; Bus, van IJzendoorn, and Pellegrini, 1995), it can easily be argued that this read aloud time counts as exposure to reading. According to Jeff McQuillan's calculations, controls had 3,600 minutes of reading. The AR group had 3,225 of reading time plus 2,850 minutes of listening to the teacher read aloud to them.

The results are not clear. The AR group made better gains on one measure of reading comprehension as well as on a test of reading accuracy, but both groups declined on another test of reading comprehension, given only to a random subsample of the AR group. The AR group appeared to decline less, however.

Vollands et. al (1996, pp. 148-9) contains a very brief report of follow-up testing done three months after the project ended. The AR group gained 12.6 months over their previous score, and the comparisons gained 15.2 months, a substantial recovery over their decline during the treatment period. These are spectacular gains for both groups, more than four times expected growth. Vollands et. al. provide no explanation for this.

In summary: The AR group did better on one test, declined less on another, but did not gain as much on the follow-up. This study, however, is not a comparison of AR versus recreational reading alone. It is a comparison of two programs in which students were held accountable for what they read, and the AR group had far more exposure to comprehensible text. In addition, the sample sizes are so small that test results are probably not reliable.

Project B

The comparison group engaged in two kinds of activities. They had 15 minutes per day of sustained silent reading time during which they could read whatever (novel) they wanted to. Vollands et. al. (1999) noted that “children would write their name on a publicly displayed chart when they had finished their book” (p. 54). The comparison group was thus also involved in a kind of incentive program. Comparison children also spent 20 to 60 minutes per week, depending on their reading level, reading from a selection of ten novels, with all reading done aloud by students, and answering comprehension questions in class or at home. This is hardly free voluntary reading. If we count only the genuine sustained silent reading time, comparison children spent a total of 30 hours in actual free reading (15 minutes per day * 120 sessions (six months) = 1800 minutes = 30 hours).

AR students in this study took the tests but received no rewards, bringing their treatment somewhat closer to genuine free voluntary reading. Points were, however, displayed in public. This study, thus, compared two versions of incentives: Points gained in AR tests displayed in public (the AR group) versus titles of books read displayed in public (comparison group).

The AR group read for 15 minutes four times per week for the first three months of the project, and 20-30 minutes for the last three months. The reading portion of the day included readalouds (Vollands et. al., 1996, p. 78). This amounts to 1920 minutes or 32 hours (for the first three months, or 12 weeks: 48 sessions * 15 minutes = 720 minutes; for the second three months, or 12 weeks, 48 sessions * 25 minutes = 1200 minutes, or a total of 1920 minutes). Thus, the AR children read slightly more (two hours) than the comparison children. Adding to the confusion, the AR students were sixth graders (11 year olds), while the comparisons were fifth graders (10 year olds), even though comparisons had higher pretest reading scores.

The results are inconsistent. Comparison students made larger gains on one test of reading comprehension (Edinburgh) but AR students made larger gains on another (Neale), with comparisons making no gains at all on the Neale, a mysterious result for a group of good readers. This inconsistency may be due to the fact that all 26 comparison students and nearly all AR students took the Edinburgh test but only a random sample of 11 AR students and 12 comparison students took the Neale comprehension test.

It is clearly difficult to conclude much of anything from this study: One could even argue that it shows the failure of AR: The comparisons gained more, despite reading slightly less, on the test taken by the full sample.

Conclusions

Despite the popularity of AR, we must conclude that there is no real evidence supporting it, no real evidence that the additional tests and rewards add anything to the power of simply supplying access to high quality and interesting reading material and providing time for children to read them. This survey thus comes to the same conclusions as a previous review (McQuillan, 1997).

This is not to say that I have proven that AR is ineffective. I have only concluded that data supporting it does not exist. Although McLoyd's results suggests that rewards actually inhibit

reading, we must withhold judgment until additional controlled studies confirm this. What we can conclude, however, is that the enthusiasm for AR is not supported by research. Before purchasing AR, and submitting students to tests, a more prudent policy might be to ensure that high-interest reading material is easily available to students, and that students have time to read and a place to read.

Note

1. McLoyd also included a group reading from “low interest” books; I consider here, however, only the high interest group, children reading a book that they rated the most interesting out of six books presented to them. This group is of the most interest to us, because it reflects what is or should be the case in sustained silent reading and in most reading management programs.

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