

Rósa Eggertsdóttir
University of Akureyri, School Development Division
Thingvallastraeti 23, 600 Akureyri
Iceland

Beginning literacy An interactive approach

In compulsory education in Iceland, literacy teaching occurs mostly in the first two or three grades. Bottom-up approach has been dominant. In the middle years reading rather than literacy has rather been practiced than taught, mostly in free-reading situation. It is safe to say that pupils in general have not been prepared to read to learn. As a consequence, some of them experience comprehension difficulties with regard to textbooks. Evidence show, that literacy skills are unsatisfactory (PISA 2006). Furthermore, book reading among teenagers is declining.

During the last two decades more and more evidence support the effectiveness of interactive approaches in literacy teaching. This chapter describes an Icelandic version of interactive balanced approach, Beginning literacy, in 1st and 2nd grades, which was first implemented in the year 2004–2005. Beginning literacy also highlights inclusive practices, collaborative work and active participation of pupils as well as integrated language arts. Repeated comparisons of outcomes show that pupils learning by Beginning literacy succeed at least equally well comparing to pupils taught by „other methods”. Boys get rather better results within Beginning literacy. It is felt by participating teachers that the approach offers rich opportunities to work with vocabulary, comprehension, comprehension strategies, creative work and autonomy as well as direct work with orthography.

Teaching of literacy in Iceland

For some time, more and more evidence show that literacy skills of pupils in compulsory education are inadequate. The PISA assessment 2003 shows that 9% of Icelandic 15 year old pupils reached the most difficult stage of five, compared to twice as many Finnish pupils (Julius Bjornsson 2005). The result of Icelandic teenagers in PISA assessment has declined since then (Julius Bjornsson 2007). In 1996 just over 16% of all 9th grade pupils in North East Iceland were considered to experience reading difficulties (Rósa Eggertsdóttir 1996). As elsewhere, people are concerned about how little boys read (Thorbjorn Broddason 2003; Magnus Olafsson et al. 2005). However, Icelanders are not the only ones that are concerned about the status of literacy. Some nations have reacted in the way of supporting literacy in schools and society in various ways (NRP2000 in USA; NLS in England 1998; First steps in Australia, 1994).

Teaching approaches

The NRP research (2000) informed that effective literacy teaching needs to involve phonemic awareness, knowledge of letter and sounds, fluency and reading comprehension, mainly vocabulary and comprehension strategies. In her review of evidence of effective literacy teaching, Studying effective literacy teachers, Pressley et al.(2001:vii, 232) found out that effective 1st grade teachers include on most elements of whole language approaches, but also address thoroughly technical aspects of literacy. These teachers are skilled in letter-sound relationship, word recognition and children literacy. This is concurrent with what Hall (2003) reports in her review that effective literacy teachers are eclectic rather than relying on any specific approach, which is in tone with what Snow and Juel (2005:514) found also, that is, effective literacy teaching could rather be explained by quality in teaching than a specific method. They also say that pupils as young as six years old may effectively be taught comprehension strategies, vocabulary and writing as well as decoding.

Various definitions of literacy have been presented over the years. Some favour the vision that reading is mainly about decoding, while others emphasize the importance of interaction between the reader and the text (Stahl og Murray 1998:74). If teaching approaches are put on a line, which shows bottom-up model on the one side and top-down model on the other side, the phonics method and the whole language approach are at the far end of either side (Vacca et al. 2003:45). Both of these approaches have their supporters but also critics. What has been criticized most with phonics is that it only goes in one direction that is from one letter to another, from one word to another but gives not opportunity to go back nor forth (Rumelhart 1985:724). It is felt that the bottom-up approach does not encourage pupils to read and therefore the result is inadequate according to Tracy and Morrow (1998:354). The whole language approach goes also in one direction, from meaning to orthography.

The third model, interactive approach, falls in between the bottom-up and top-down models (Vacca et al. 2006:38) and takes the best from both models. The reader relies simultaneously on knowledge and skills with vocabulary, orthography, meaning and syntax (Rumelhart 1985:736). Spiro (1980 see Zakaluk 1982/1996) has similar opinion. He believes that reading is a multistage process with interaction. He analyses the style of writing in many ways, e.g. letters, combination of letters and words. For the reader to improve understanding, he needs to apply his former knowledge. In that way, interaction between the understanding of the written language and meaning occurs (Just og Carpenders 1985:204-205).

Conversation about the content of a text is an important factor in teaching. The emphasis is on helping the student to consciously control the reading process. It is assumed that teachers are using various assignments in order to focus on the meaning of methods in successful reading. (Ruddel and Speaker, 1985:774;786).

In the writings of many scholars, one can see that the emphasis is on integrated language art approach. (Vacca et al. 2006:46-47; First steps 1994:3; Ellis. Friel and Friel 2005:4-7; NRP, 2000, Honig, 1996:13). What makes the integrated approach so interesting is the simultaneous

emphasis on the meaning of the text and the text itself. From the beginning of literacy learning the pupils can enjoy the meaning of the text. Furthermore it gives various opportunities concerning content and individualized tasks.

Beginning literacy – the approach

Under the umbrella of interactive approaches Beginning literacy has been developed (Rosa Eggertsdóttir 2005, 2006). While shaping the approach Gudschinsky (1965, 1970; Lee, 1982), Frost (1983a, 1983b, 1984), Solity (1999, 2003), Leimar (see Bryndís Gunnarsdóttir 1988), NRP (2000) and Zakaluk (1982/1996) were the most influential agents. Among the preconditions of Beginning literacy, following issues are of importance:

- The integration of speaking, listening, reading and writing is the basis for success in literacy. Within a holistic task pupils work with comprehension, letter-sound relationship and fluency. As a consequence, work with phonemic awareness, spelling, handwriting, vocabulary, syntax and grammar is not addressed separately.
- Vocabulary acquisition is important as it supports good comprehension. The rhythm in the study of literacy is from whole to parts and to whole again.
- Quality texts¹ from real books are used and its content addressed through discussions.
- All technical work comes from the material found in the quality text. Keywords from texts are used to represent most of the technical aspects of literacy study.
- The more pupils engage in literacy related task, the more likely they are to become well literate.
- When children attend school for the first time, they bring different background knowledge and skills with regard to literacy. They have all some experience of written language in their environment. Some have already begun reading, others have some knowledge of letters and sounds, and then there are those who need to learn all the letters and their sounds.
- Beginning Literacy assumes that all children can be taught together, irrelevant of their initial status. Consequently, personalized needs of pupils are met through group work and paired work.
- It is taken for granted that learning needs of all pupils are met in the classroom. When necessary, team teaching is encouraged.
- Lack of learning success is rather linked to inadequate teaching than assumed children learning difficulties.
- Pupils are taught skills and strategies that are likely to encourage them to become independent and skilled readers.
- The study of literacy needs to nurture creative thinking and expression.
- The study of literacy needs to be fun and encourage interaction.
- Teachers gather data about pupils' progress during daily classroom work. Instead of correcting pupils and have them redo tasks, teachers plan new activities where pupils get thorough guidance and opportunities to practice.

Beginning Literacy is developed in three phases (fig. 1). During the first phase pupils are exposed to a text of quality. In the second phase they deal with technical aspects of literacy. The third

¹ Real books as opposed to text books, see Meek, M., 1988.

phase encourages pupils to express their own ideas, preferably linked to the vocabulary of the text they studied in the first phase. Technical work with print and sounds takes place within the vocabulary of the text introduced in phase one. As pupils' skills and knowledge improve, their independency is encouraged. It is assumed that literacy lessons occur two to three times a day, every day of the week, at minimum 90 minutes per day. Across the three phases pupils are expected to read much. Peer support is emphasized resulting in much group work and paired work. Educational games and cards ensure interaction where pupils support each other and compete for results. Pupils become active participants and the learning becomes fun. Teachers write formal plans for each week.

Beginning literacy

Phase 1: Content of the text. Whole class

Real text
Reading aloud, recalling, shared reading, study of print

Phase 2: Technical aspects of literacy study. Whole class, groups.

Analytical and synthetic tasks
Phonemic awareness, study of print, letter, word parts, words....

Phase 3: Reconstruction of text. Groups, individuals

Guided reading, independent reading
Writing of words and sentences
New thoughts, texts written

Figure 1: Phases of Beginning literacy.

During the first phase of Beginning literacy, the teacher reads aloud to pupils, a story, a poem or informational text. The teacher makes use of the opportunities the text provides to discuss and enjoy the meaning. The teacher's reading is partly to enhance pupils' collective experience of discussion of meaning and words and to bridge the oral and the written language. The teacher continues to read aloud to pupils although they themselves are getting more skilled at reading. The pupils also read parts of the text and talk about it. Gradually, the pupils take over the reading aloud and start reading to each other.

Technical work comes in the wake of reading aloud and discussion about the text. This technical work involves, for example, sounds and graphemes, phonemic awareness, handwriting, spelling of irregular words, complex words and use of capital letters. The context for this kind of work is the vocabulary of the text which was introduced to the pupils in the first phase. This means that conventional workbooks are set aside in favour of material directly linked to the selected text of quality. In each text the teacher chooses a keyword to study and discuss. The keyword becomes a tool for the technical aspect of learning to read. Early on, the teacher picks out the keyword,

which may be any word from the text. However, the keyword needs to represent a predetermined goal. That way, the keyword could have two specific letters to teach this week (together: to, tog, get, the, he) or be a combination of two words, or provide an example of some irregularity or demonstrate certain grammar characteristics. In Beginning literacy it is expected that pupils are grouped in pairs or threes when they work on these technical activities. The teacher has three choices when organizing such work:

1. The teacher can invite all pupils to do the same kind of work. This applies mainly with work on new ideas or when techniques are introduced and taught. This approach does not take account of individual needs.
2. The teacher may also organise work stations with different tasks, where one group might work on phonemic awareness, another practising handwriting, the third practise decoding and the fourth studying frequent words. Pupil groups might move from one station to another.
3. The activities at certain work stations could be tailor-made for particular pupils. That way some pairs and groups could work on tasks intended to enable them to make progress in literacy study, but other pairs of pupils may have repeated teaching of a particular letter/sound; or the difference between f and v or the reversal of letters b and d.

The vocabulary that stems from the keyword may be used for technical work as well as in restructuring meaning in the third and last phase of Beginning literacy.

The third phase of Beginning literacy is reconstruction of meaning. Pupils draw pictures, they write their own texts, make plays and music, depending on what suits the occasion and the pupils wish to do. They draw upon the vocabulary that was introduced during the first phase. They do not rebuild what was worked with in the beginning; rather, they create new scenes or step outside the original text. In that way, the pupils may have Katie Morag write a letter to her friend on the mainland, write an information text about seals and play a musical piece which describes how Peter was feeling when he was alone in the world and how happy he became when woke up and saw his mother. When pupils' writing is planned in the beginning, the most important thing is that expression is the core concept but form and spelling are in the background. Young pupils first express themselves through drawings but gradually they add words and chunk of words and finally they write whole sentences and paragraphs.

The need for expression is an important basis for the development of writing skills. The play, which comes naturally to children, is used as a tool to support their awareness for story structure. One way is to use a story frame as a starting point. The teacher provides a story frame and toys for characters. The pupils give the characters life and personalities, create an environment and decide on the story and events within it. The story frame leads the children through the stages of making characters, environment and storyline. Within each story there needs to be a dynamic high event, which demands some kind of solution. The pupils tell the story and talk on behalf of the characters. When they have become quite skilled in creating stories like that, they start writing them down. As well as supporting much reading of all kinds and enhancing vocabulary, it is necessary to teach the pupils strategies to help them with comprehension. Reciprocal teaching is one of many learning strategies. Pupils learn to retell the main thoughts, explain words and predict meaning. Concept mapping is another worthy strategy.

Beginning Literacy – development programme and outcomes

The model of Beginning literacy was more or less fully developed in the spring 2004. It was first tried out with eight teachers in the school year 2004-2005 in four rural schools and other eight teachers a year later in two schools in the town of Akureyri. Action research was conducted which influenced the project over these two years. In addition to the data that related directly to the teaching of the method, minutes, fieldnotes, teaching plans, photographs and various examples of pupils work were gathered. Furthermore, the screening tests used in 1st and 2nd grades in all the seven primary schools in Akureyri, were used to compare outcomes from Beginning literacy to “other methods”. Prior to school start, participating teachers attended two days course and started to work by the plan no later than three weeks after school beginning. A consultant visited each teacher’s classroom seven or eight times over the winter, with following conversation for half an hour at least. Teachers also attended four group meetings over the school year. In some cases the consultant and individual teachers met more often.

Comparable data were gathered over the two years. However, some issues interfered during the first year, such as a teachers’ strike that lasted almost two months and the total number of pupils that year was less than 50 for each year group. Because of this, the focus will be mostly on the data from the latter year, 2005 – 2006.

In 1st grade 72 pupils learned by Beginning literacy while 168 pupils were taught by “different methods”. While comparing methods of reading, not much difference concerning acceptable results is noticeable. There is, however, noticeable difference in the group that were below 31% results, favouring the Beginning literacy group (table 1). In fact, that was the result in all tests in the 1st and 2nd grade.

Table 1: *Students in the 1st grade with 60% results or more and 30% results or less.*

1 st class	<i>Students with 60% results or more</i>		<i>Students with 30% results or less</i>	
	Other methods	Beg. literacy	Other methods	Beg. literacy
Test 1	54%	64%	4%	0%
Test 2	79%	72%	2%	0%
Test 3	70%	69%	17%	11%

In the 2nd class, 85 pupils were in Beginning literacy group but 195 pupils learned by “other methods”. Almost equal ratio of pupils achieved acceptable results in both groups, although the outcome in the Beginning literacy group was a little better. Fewer students in the Beginning literacy group got less than 31% results in comparison to the other group (table 2).

Table 2: *Students in the 2nd grade with 60% results or more and 30% results or less.*

2 nd class	<i>Students with 60% results or more</i>		<i>Students with 30% results or less</i>	
	Other methods	Beg. literacy	Other methods	Beg. literacy
Test 1	50%	58%	16%	11%
Test 2	58%	61%	17%	14%
Test 3	82%	83%	2%	0%

Girls got considerably better results than boys, as it seemed irrelevant to the teaching approach. Despite the big difference between the genders boys got better results with Beginning literacy compared to “other methods”. By the end of 2nd grade the difference had almost disappeared (table 3).

Table 3 Boys in 1st and 2nd grade with 60% results or more.

Boys with over 60% results	Other methods 1 st grade	Beg. literacy 1 st grade	Other methods 2 nd grade	Beg. literacy 2 nd grade
Test 1	46%	58%	41%	57%
Test 2	73%	61%	47%	55%
Test 3	59%	63%	77%	76%

It is fair to point out that the screening tests (LAESI) only evaluates reading, but not writing, conversation, retelling, concept mapping, strategies, independency or initiative. It was, nevertheless, both important and necessary to compare students’ results with results gained by “other methods”.

Teachers talked about three stages in mastering the Beginning literacy method. From the beginning of school and until November, they were gaining the skill of these three stages, emphasising the first two stages. They focused on making teaching plans, working with key words and the making of assignments relating to the week’s reading material. Instead of traditional textbooks for literacy teaching, teachers used quality story books and poems. Whereas the storybooks did not fall into the category of traditional textbooks, not many copies of each book were available. That did not seem to matter all that much, whereas rich text was in the assignments used.

Despite the fact that the teachers supported each other, they were indisputably under a lot of stress, especially in the beginning of the school year. One teacher reported anxiety and insecurity until midterm. In November and until February, teachers focused on the variety of assignments and co-operative learning. By that time, most teachers had developed their own teaching approach and had found ways to fit it to Beginning literacy. They stepped towards strengthen pupils independency and study games and educational cards became more important. Teachers reported that individualizing the literacy study was the most difficult factor. On the other hand they found it surprisingly easy to set aside typical workbooks. Below are comments from teachers:

“What we are doing now fits them extremely well. Four groups, four in each. Two groups are working on mind mapping, one group is cutting words from newspapers and the fourth group is making words and letters out of clay and then type them into a computer... Now that you have got to know the children, you can put together in a group, effective pupils and the less effective and those who are making a scene and those who are not. They really enjoy this and become absorbed in the activities. Usually it takes them half an hour to come back from the

gymnasium. Now everyone was here within 15 minutes because they really enjoyed what we had been doing. We started yesterday and some children cried because they missed this. I really like doing this and this is working really well.”

“Yes I like this a lot. It costs a lot of work and it is obviously much easier to use the traditional workbooks. But this is much more fun for me as a teacher and I think it is also more fun for them.”

“We need our time to learn. If you think about how short a time we’ve been at it and what level we are today, the model shows us that it is working. Our pupils are now on stage three in independent study methods.”

“Yes, people are very satisfied... Parents are very positive. Those parents that have older children are amazed how good they have become, compared to how long they have been in school. They are surprised by skilled they are at writing in 2nd class.”

The teachers evaluated their work at the end of the school year. They focused on factors like how the Beginning literacy method functioned compared to their former experience of literacy teaching. The teachers also evaluated the consultation given during the school year, form and content. More than half of the teachers stated that the pupils had been content and interested. They had been independent, the assignments had varied a lot, teamwork and that the different needs of individuals had been met. Half of the teachers thought they needed more training in assessment for learning, keeping records of pupils’ individual needs.

Teachers did not think that the method should be changed in any way, but more attention should be made towards the teaching of writing. Most of the teachers thought that the method should be taught the way they learned it, i.e. starting with a course, field observation and consulting time and with group meetings. Some suggested that new teachers should be given the opportunity to visit those with more experience. All teachers recommended that schools should include Beginning literacy in the policy of the school.

Final words

Following can be concluded from the two years of shaping and trying out Beginning literacy programme:

- Beginning literacy is a practical method to teach literacy in inclusive classrooms the first two years in school.
- The three step schedule allows teachers to integrate speaking, listening, writing and reading in a successful way.
- Pupils learning to read by Beginning literacy get at least the same results as pupils who learn to read by other methods. Boys seem to get good results using this method.
- The results give reason to believe that pupils learning to read using Beginning literacy get good results in reading.

- Clues give reason to believe that the method suits pupils that otherwise would have got poor results in literacy. Beginning literacy does not however prevent literacy difficulties.
- Teachers state that pupils learned more in reading and writing during the school year than they had expected.
- Beginning literacy encourages pupils to use independent study methods.
- Teachers that have used the method are content. They believe that the method gives them space to develop their style in literacy teaching.
- The method is complicated. It takes a whole school year to master it.
- It is essential to advise teachers, both in the schools and on courses.
- Teachers need extra support to be able to assess individual needs for learning and to plan for meeting individual needs in the classroom.

Although formal development of the programme is officially over, the collaboration with the schools continues and ten new schools have joined in. Beginning literacy will be formally introduced the coming spring and a DVD disc has been made as teacher's resources. It is customary in Icelandic primary schools that the teacher teach the same class for three or four years. Most Beginning literacy teachers seem to continue to work in this way when teaching the 3rd class. The consultants from Akureyri University keep on learning and are among other things putting more emphasis on the writing as their knowledge and skills improve.

Beginning literacy will continue to develop. The programme has its origin in the interactive approach where emphasis is on meaning and technical aspects of literacy with the purpose of reading and writing is a cognitive action and is meaningful to the reader. Beginning literacy gets its useful and progressive ideas from research but also gives teachers space to develop their ideas and adapt it to the needs of the children.

List of references:

Bensoussan, M. 1998. Schema effects in EFL reading comprehension. *Journal of Research in Reading*. Vol. 21, (3) 213-227.

Bryndís Gunnarsdóttir, 1988. *Thetta er... Skýrsla um LTG-lestrarkennslu í AEfinga- og tilraunaskola KHI veturna 1980-1984*. Reykjavík: KHI.

Ellis, S., Friel, G. og Friel, J. 2005. *100 literacy hours. All new. Year 3*. Warwickshire: Scholastic.

First Steps. 1994. *Reading Development Continuum. Reserached and Developed by the Education Department of Western Australia*. Portsmouth: Heinemann.

Frost, Jörgen. 1983a. *Lærervejledning. Helhedslæsning på begyndertrinnet*. Copenhagen, Gyldendal.

Frost, Jörgen. 1983b. *Helhedslæsning. Lærerevejledning Lars og Sören Lejrturen*. Copenhagen, Gyldendal.

Frost, Jörgen. 1984. *Den individuelle undervisning i dansk*. Copenhagen, Gyldendal.

Gillard D. 2007. *Education in England: a brief history*. Website: www.dg.dial.pipex.com/history/

Gudschinsky, S. C. 1965. *Handbook of Literacy*. [Oklahoma]: Summer Institute of Linguistics. University of Oklahoma.

Gudschinsky, Sarah. 1970. Motivation and pre-reading for adult literacy. *Occational bulletin - Missionary Research Library*. 20 (9), 3-5.

Hall, Kathy. 2003. Effective literacy teaching in the early years of school: A review of evidence. In Hall, Larson and Marsh, *Handbook of early childhood literacy*. London: Sage. (P.315–326).

Honig, Bill. 1996. *Teaching our children to read. The role of skills in a comprehensive reading program*. Thousand Oaks: Corvin press.

Just, M. A. og Carpenter, P. A. 1985. A Theory of reading: From eye fixations to comprehension. Í H. Singer og R. B. Ruddell (ritstj.), *Theoretical models and processes of reading*. 3. útg. Newark: IRA. Bls. 174-209.

Julius K. Björnsson. 2005. *Oversikt over PISA resultatene i Norden og noen tanker omkring hva de betyr*. Námsmatsstofnun: Reykjavík.

Lee, E. W. 1982. *Literacy primers: The Gudschinsky method*. [Dallas]: The Summer institute of linguistics.

Magnús Olafsson, Kjartan Olafsson, Rosa Eggertsdóttir, Kristjan Mar Magnusson. 2005. *Thyngd skólabarna og tengsl við líðan og námsárangur. Langtímarannsókn meðal barna í 4., 7. og 10. bekk grunnskóla á starfssvæði Heilsugæslustöðvarinnar á Akureyri. 2. hluti*. Akureyri: RHA. [Upplýsingar um lestrartengda þætti eru enn óbirtir en voru hluti af ofangreindri rannsókn].

Margrét Ingimundardóttir. Febrúar 2007. *Little Red Hood*. E-mail 29th February.

Meek, M. 1988. *How texts teach what readers learn*. Woodchester: Thimble press.

Morgunblaðið 4. apríl 2004. Thorbjörn Broddason. *Konnun um fjolmidlanotkun 10 – 15 ára barna á Íslandi synir að lestur meðal barna minnkar*.

NLS - National Literacy Strategy in UK. Vefsíða sótt 14. febrúar 2007 frá <http://www.literacytrust.org.uk/update/index.html>

NRP – Report of the National Reading Panel. *Teaching children to read. An evidence-based assessment of the scientific research literature on reading and its implications for reading instructions.* 2000. NCHD.

Pressley, M., Allington, R.L., Wharton-McDonald, R., Block, C.C., Morrow, L.M. 2001. *Learning to read. Lessons from exemplary first-grade classrooms.* New York: The Guilford press.

Rósa Eggertsdóttir (ritstjóri). 1998. *Fluglæsi. Áherslur, stefnumörkun og aðferðir í lestrarkennslu.* Akureyri: Skólaþjónusta Eyþings.

Rósa Eggertsdóttir. 1996. *Lestur. Könnun á stöðu nemenda í 9. bekk á Norðurlandi eystra vorið 1996.* Akureyri: Fræðsluskrifstofa norðurlands eystra.

Rósa Eggertsdóttir. 1997-2005. *Greiningargögn vegna leshömlunar, frá nemendum í grunnskólum, og framhaldsskólum.*

Rósa Eggertsdóttir. 2000-2005. *Viðtalsnótur frá kennurum í unglingadeildum á námskeiðum.*

Rósa Eggertsdóttir. 2002-2003. *Viðtalsnótur frá verkefninu Læsi til framtíðar í 12 skólum.*

Rósa Eggertsdóttir. 2005. *Byrjendalæsi. Skýrsla um þróunarstarf í lestri í 1. og 2. bekk í grunnskólum Húnavatnssýslu.* Akureyri: Háskólinn á Akureyri.

Rósa Eggertsdóttir. 2006. *Byrjendalæsi. Skýrsla um þróunarstarf í lestri í 1. og 2. bekk í Lundarskóla og Oddeyrarskóla 2005 til 2006.* Akureyri: Háskólinn á Akureyri.

Ruddel, R. B. og Speaker, R. 1985. The interactive reading process: A model. Í H. Singer og R. B. Ruddell (ritstj.), *Theoretical models and processes of reading.* 3. útg. Newark: IRA. Bls. 751-793.

Rumelhart, D. E. 1985. Toward an interactive model of reading. Í H. Singer og R. B. Ruddell (ritstj.), *Theoretical models and processes of reading.* 3. útg. Newark: IRA. Bls. 722-750.

Snow, C. E. og Juel, C. 2005. Teaching children to read: What do we know about how to do it? Í M. J. Snowling og C. Hulme (ritstj.), *The science of reading: A handbook.* Oxford: Blackwell. Bls. 501-520.

Solity, J., Deavers, R., Kerfoot, S., Crane, G., Cannon, K.. 1999. Raising literacy attainments in the early years: The impact of instructional psychology. *Educational Psychology*. December, 19 (4).

Solity, J. 1999. Spotlight. Early Reading Research: An overview. *The British Psychological Society Division of Educational And Child Psychology*. Newsletter 91. June.

Solity, J. 2003. *Teaching Phonics in Context: A Critique of the National Literacy Strategy*. Paper presented to DfES seminar. Teaching phonics in the NLS. 17th March 2003. Slóð:
http://www.standards.dfes.gov.uk/literacy/publications/research/686807/jsolity_phonics.PDF

Stahl, A. og Murray, B. 1998. Issues involved in defining phonological awareness and its relation to early reading. Í J. L. Metsala og L. C. Ehri, Linnea (ritstj.), *Word Recognition in Beginning Literacy*. Mahwah: LEA. Bls. 65-87.

Tracey, D. H. og Morrow, L. M. 1998. Motivating contexts for young children's literacy development: implication for word recognition. Í J. L. Metsala og L. C. Ehri (ritstj.), *Word Recognition in Beginning Literacy*. Mahwah: LEA. Bls. 341-356.

Tunmer, W. E. og Chapman, J. W. 1998. Language prediction skill, phonological recoding ability and beginning reading. Í C. Hume og R. M. Joshi (ritstj.), *Reading and Spelling. Development and disorders*. Mahwah: LEA. Bls. 33-67.

Vacca J.A., Vacca, R. T., Gove, M.K., Burkey, L.C., Lenhart, L.A., McKeon, C.A. 2006. *Reading and learning to read*. 6. útg. Boston: Allyn and Bacon.

Vacca, J. A., Vacca, R. T., Gove, M. K., Burkey, L., Lenhart, L. A. og McKeon, C. 2003. *Reading and learning to read*. 5. útg. Boston: Allyn og Bacon.

Zakaluk, Beverly L. 1982/1996. *A Theoretical Overview of the Reading Process: Factors which influence performance and implications for instruction*. Vefsíða. Sótt 14. febrúar 2007. <http://www.umanitoba.ca/education/edlab/Archive/81529/theopape.html>

Thorbjorn Broddason. *Konnun um fjölmíðlanotkun 10 – 15 ára barna á Íslandi synir að lestur meðal barna minnkar*. Morgunblaðið 4. apríl 2004.

Information literacy is not merely an academic concern. As the basis for life-long learning, information literacy can be considered the core literacy of the 21st century, a "kernel" for all other literacies⁷. In recent years, gaming has been proposed as an engaging, interactive, and familiar (from the student perspective) way of structuring the learning experience. Herein, we explore how game-based learning strategies can be applied to actively engage engineering students in learning digital library search tools, in context of the global Knovel Academic Challenge, played by over 2000 students in 430 universities. We begin with a brief literature review of game-based learning principles and approaches.

Engineering. 4. Developing literacy skills in a foreign language can begin as early as foreign language instruction begins. Although some EFL programs delay literacy instruction for young learners and only focus on oral language development, studies have shown that it is not necessary, or even recommended, to take this approach. First, it is widely known that literacy skills in the native or first language (L1) can be transferred to reading and writing in a foreign language, such as English.

Interactive writing: This activity is similar to shared writing activities like the Language Experience Approach, but the teacher does not do the actual writing. The responsibility is passed to the students although it is still heavily scaffolded and the teacher still facilitates the discussion.