EDU 3411

Assignment 1

Annotated Bibliography

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PART: A

Reference 1

Ebbers, M. 2000, 'Science text sets: Using various genres to promote literacy and inquiry', *Language Arts*, vol. 80, no. 1, pp. 40-50.

Description

Ebbers utilises a two stage process in her paper on science and literacy. Initially she discusses the concept of scientific literacy broadly, and how it relates to the principle of scientific inquiry. The second component to this paper is a discussion of the types ("genres") of texts ("trade books") that can be utilised by the teacher in developing these skills and scientific knowledge more broadly. Through exposure to multiple genres of scientific literature, science is "characterised" in "a way that is more authentic," and students develop scientific literacy and concomitant skills of scientific inquiry.

Content Analysis

Ebbers highlights the realisation that reading and writing are "fundamental to the preparation of good scientists" (Ebbers 2000, p.40). However, she also reaches the more significant conclusion that "scientific literacy is more than reading about science" (Ebbers 2000, p.40). Scientific literacy "means that a person can ask, find, or determine answers to questions that derive from curiosity about everyday experiences" (Ebbers 2000, p.40). She uses words such as describe, explain, predict, understand and engage to describe the abilities of a scientifically literate person.

Unlike other literacy commentators, Ebbers does not negate the language fundamentals in her support for broader literacy outcomes. Both language and literacy skills are required by the scientist. She also makes links to the concept of scientific inquiry, and suggests that any scientific literacy strategy can be developed with those for 'inquiry' in a way that is "mutually beneficial" (Ebbers 2000, p.40). Ebbers should go further here to suggest that not only can it be done in a mutually beneficial way, but rather it must be done in a joined-up manner.

Ebbers describes seven genres. They are ‘reference’, ‘explanation’, ‘filed guides’, ‘how-to’, ‘narrative expository’, ‘biography’ and ‘journal’. For the sake of brevity, the genres will not be discussed here, although each is clearly shown to be relevant to the classroom setting, with some of the excerpts provided, bringing into doubt many of the traditional texts in this context.

Evaluation

Authenticity is a key concept in Ebbers’ interpretation of scientific literacy. Science should be portrayed, whether through metaphor or analogy (Ebbers 2000, p.41), or through real examples, in a way that is realistic and in the context of the experiences of a practising scientist or individual making their own scientific inquiry. It is through the students’ own scientific inquiry, or in this instance, through the use of ‘trade books’ that authenticity and hence scientific literacy is achieved.

Science, therefore, should not be taught as an abstract set of concepts and facts. This paper has clearly shown, that through the selection of appropriate texts, both literacy and scientific outcomes can be achieved, in a mutually beneficial way. Even where the suggested genres are not employed, the scientific teaching, or rather the subject matter can be contextualised and presented to encompasses multiple perspectives. The science teacher must remember that “science occurs in the context of ethical, economic, religious, ideological and cultural values” (Ebbers 2000, p.41), and this must be communicated to the students, either implicitly or explicitly.

This approach as described by Ebbers, in relation to scientific literacy, can and should be applied across all key learning areas. A number of texts could be selected on any subject matter, although the non-fiction genres may need to be varied according to the key learning area in question. In the case of (at least) scientific literacy, the selection of genres need not be limited to written publications. Posters, film, radio, live performances and electronic media could all serve to increase scientific literacy, although not necessarily improving reading or writing skills (although content of the work could improve).

Reference 2

Langford, L. 2001, 'Critical literacy, A building block towards the information literate school community', *Teacher Librarian*, vol. 28, no. 5, pp. 18-21.

Brief Description

In this paper, Langford attempts to "question what critical literacy is about" (Langford 2001, p.18) and how it can be developed. She discusses the concept in the context of an ever expanding literacy debate, and extends the scope of 'literacy' in this regard to concepts of critical thinking, life-long learning and the broader community. Essentially this paper represents a call to the whole school community not to get bogged down by "jargon" (Langford 2001, p.21), and to comprehend and implement the "process and practice" (Langford 2001, p.18) of critical literacy together with the other literacies she identifies, in an holistic manner.

Content Analysis

In regard to the above-stated aims, Langford merely muddies the waters further of an already conceptually rich but 'practicality poor' debate. The, at times, randomly arranged 'factual snippets' do little to extend the critical literacy debate, nor do they provide a practical guide for the achievement of critical literacy outcomes in the school or broader school community. So where does the 'value lie' in this paper? Langford identifies that there has been a "paradigm shift from information skills thinking to lifelong learning thinking" (Langford 2001, p.21) and concomitantly there is a necessary role for critical literacy theory and practice. Given this realisation it is not surprising that she adopts a broad view of critical literacies that extends into theories of critical and creative thinking. Hence, critical literacy "relies on the development of critical and creative thinking" (Langford 2001, p.18).

Langford provides what can best be described as a checklist for identifying a "critically literate community" and to identify "critical and creative thinkers" (Langford 2001, p.19), yet provides no practical guidelines for utilising these 'identifiers' in the classroom (despite her

claims to the contrary). She has, however, discussed the potential role of skills development in the areas of ‘analysis’, ‘synthesis’ and ‘evaluation’ in creating a critically literate person (Langford 2001, p.20).

Evaluation

Ultimately this paper does recognise critical literacy as a component to an holistic literacy approach, and one element in equipping students to become life-long learners. This ‘literature review’, as it is best described, has highlighted a range of views on critical literacy and related concepts, but has neither extended them nor provided guidance in their practical application. This is a shame, as the concept warrants development and broad application throughout all levels of schooling.

Langford’s summary of “characteristics that may define a critically literate community” (Langford 2001, p.19) provides a valid set of goals that any school could adopt in a statement of desired outcomes for their students, although this would need to be supported with corresponding objective measures by which to assess performance. Langford’s recognition of critical literacy being reliant upon the development of both critical and creative thinking, and also requiring the skills of analysis, synthesis and evaluation would suggest that every key learning area has a part to play in the development of critical literacy. Conversely the application of critical literacy (and related skills) to the subject mater of any key learning area would result in a greater depth of understanding, and one that is contextualised. Hence critical literacy here provides the link between gaining knowledge and subsequently utilising that knowledge in school and non-school environments.

Science in particular, could shed its ‘factual’ image and provide more broadly applicable learning outcomes if the scientific analysis contained also a critical literacy approach. Here, it would mean the difference between a student developing scientific knowledge and a student ‘becoming’ a scientist, fully equipped to engage in scientific inquiry and analysis.

Reference 3

Queensland School Curriculum Council 2001, *Literacy: Position Paper*, QSCC (online), Available: http://www.qsa.qld.edu.au/publications/1to10/files/literacy.pdf (24 March 2004).

Description

This 'position paper' achieves three things. It provides a good summary of the current state of thinking on the issue of literacy. It provides characteristics of literacy development for the various levels of schooling (from 1 to 6). The paper also gives examples of literacy practice in the key learning areas, broken down into four sub-elements of resources (code-breaking, text-participating, text-using and text-analysing) as were suggested by Freebody and Luke (1990).

Content Analysis

The rationale provides a good justification for the adoption of this new literacy paradigm and the relative weight being given to the issue in Queensland. Literacy is placed clearly on the agenda both nationally (MCEETYA) and within the state. A number of definitions of literacy are discussed with a determination that one given by MCEETYA is "adequately inclusive" despite failing to refer to 'literacies' or literacy as a "social practice" (QSCC 2001, p.3).

The paper investigates a number of systems of classification and models for 'resourcing' literacy practice. Three "interlocking dimensions" (QSCC 2001, p.3) of literacy are described. Seven learning "approaches" (QSCC 2001, p.4) to literacy education are listed followed by "four large generic categories" (QSCC 2001, p.4) of literacy approaches. The 'four roles model' of literacy resources has been tabulated. Characteristics of literacy development for the various levels of schooling (from 1 to 6). Despite the 'position 'paper' nature of the document, such a reductionist approach to summarising the issues of literacy could be problematic.

The true value of such a paradigm is that through focussing on the singular concept of literacy, broad and holistic approaches can be taken and wide ranging and broadly applicable outcomes can be achieved. The author/s come some way to making this realisation. They are not implying there is "need for extra curriculum space for literacy" (QSCC 2001, p.12), rather it is to be addressed within each key learning area. Literacy is both "an instrument for all teaching and learning" and an "object of overt teaching and learning" (QSCC 2001, p.12).

Evaluation

It is with this emphasis on differentiated literacy practices and objectives on the basis of key learning area that is most problematic. It is useful, as an instructional tool for the teacher to be aware of how their pedagogical processes, activities and content impact on literacy outcomes, and how then they can improve these elements. But as has been my frequent experience, where a complex process is codified or broken down into sub-components (steps), it is taken as prescriptive and is blindly followed, with little regard for the broader objectives or the interrelated and complex nature of the issue at hand.

The classification of literacy outcomes by level could be useful if applied in a constructive manner. As literacy does transcend KLA boundaries, each group of outcomes for a particular level could serve as a unifying goal across all key learning areas within the school. These outcomes could serve as a singular goal around which the various teachers from the various key learning areas could rally.

The assertion that literacy is both the "responsibility of all key learning areas" and that "each key learning area makes unique contributions to the development of an individual's literate capacity" is paramount in this issue. This should be interpreted as meaning that there are not 'literacies' specific to each key learning area, but each contributes to an overall literacy with some elements of more use to different subject matter. Outside of school the subject area boundaries are never as clearly defined. Hence a common whole of school based literacy approach where each key learning area is achieving a variety literacy outcomes, but in different proportions, would be ideal.

Reference 4

Stokes, S. 2002, 'Visual literacy in teaching and learning: A literature perspective', ***Electronic Journal for the Integration of Technology in Education*** **(online), vol. 1, no. 1, pp. 10-19, Available: http://ejite.isu.edu/Volume1No1/pdfs/stokes.pdf (23 March 2004).**

Description

Stokes (2002, p.10) provides good description of her paper. It "provides an introduction to the visual literacy" and investigates studies where visual aides of varying types have been employed. Her conclusion is best summarised through a small manipulation of this old expression:

> A picture is worth a thousand words ….
> But a picture with additional words is worth even more.

She has also found that the use of colour images is more effective than black and white.

Content Analysis

Stokes is clearly and advocate of the use of visual aides, as she clearly states (Stokes 2002, p.10), she hopes to "stimulate interest in using visual enhancements in teaching" in addition to developing visual skills. In this instance she views visual literacy as one component. Students must also develop verbal, reading and mathematical skills. She goes one step further and recognises that holistic and joined-up nature of literacy, through the recognition that these skills must be developed in "combination' (Stokes 2002, p.10).

In addition to having been proved beneficial to learning and literacy outcomes , the use of visual aides can be supported in theory because pictures are "analogs of experience and are only one step removed from actual events" (Stokes 2002, p.14). Hence, imagery that is superfluous to achieving the desired learning outcomes can actually be detrimental to that goal (Stokes 2002, p.16).

There is the vital recognition, that simple word, numbers, and memorisation skills are no longer sufficient to equip lifelong learners in a quickly changing and technologically advanced world. Visual literacy is necessary to equip students to adapt to and utilise these

"emerging technologies" (Stokes 2002, p.11). It is also necessary for analysis and comprehension of complex relations that can only/best be represented graphically.

Evaluation

Visual literacy could provide the basis for a more unified conception of 'literacy' and be of most value to my key learning area of specialisation, science. As I have already discussed the use of visual aides can be supported in theory because pictures are "analogs of experience and are only one step removed from actual events" (Stokes 2002, p.14). Direct observation of the living/scientific world would be ideal however. Stokes (2002, p.12) identifies a definition of visual literacy that effectively equates it with science. It is "a group of competencies that allows humans to discriminate and interpret the visible action, objects, and/or symbols, natural or constructed, that they encounter in the environment."

Visual elements could also be utilised within any of the key learning areas, and as such could help facilitate a whole of school approach. This stems from two approaches recommended for developing visual literacy. Visual images can be either decoded, "interpreting and creating meaning from visual stimuli," or encoded, creating visual images to interprets non visual information (Stokes 2002, p.13). As such an image can form the basis for a piece of creative writing in English, or an image can be created to display the relationship between physical processes in science. Unlike the subject area specific conceptions of literacy, visual literacy can 'reside' in every key learning area. However, Stokes (2002, p.16) suggests that proper instruction as to the best methods for incorporating visual stimuli into the classroom setting are vital for true value in the use of 'visual literacy'.

PART B:

We must not get confused between literacy and domain. By this I mean any measures or assessment of literacy must avoid simply measuring knowledge. It is probably true that a student who can master a key learning area is aided in this achievement through a well developed standard of literacy in all areas, and one with a specific emphasis on that key learning area. However, it may be that through practice or memory, or through other factors (time management for example) that the student has been able to succeed. Herein lies the problem with standardised testing for literacy. Such a broad theory, involving a multitude of literacies and requiring holistic and joined up approaches to teaching cannot be measured by a single test. Longitudinal studies that track a student beyond secondary school and that assess lifelong learning outcomes is really the only way to assess the new broad understanding of literacy.

An area of further literacy research should investigate the relationship between the variety of literacies that have been suggested, with it's broad range of capabilities and outcomes and Howard Gardner's theories of multiple intelligences.

The following quote from Gardner (1999) highlights where these links can be made

> In my own work, I'm a proponent of teaching for understanding, which means going deeply into topics so that students can really make use of knowledge in new situations. This is very, very different from most teaching, where people memorize material and can reproduce it on demand but can't make use of it in new situations. That's what understanding entails. If you favor education for understanding the way I do, then MI can be extremely helpful. Because when you are teaching a topic, you can approach the topic in many ways, thereby activating different intelligences. You can provide analogies and metaphors for different domains, invading different intelligences, and finally, you can present the key ideas in a number of different languages or symbol systems, again activating different intelligences.

Much similarity in approach can be seen, especially in the concept that literacy is itself an element in achieving the goal of lifelong learning. There appears to be considerable scope for the development of the concept of literacy in this regard. Literacy, as we now see it being applied (such as in the papers reviewed here) far exceeds the scope of the 'linguistic intelligence' described by Gardner. Both theories warrant a similar teaching strategy, and both have often suffered through a reductionist, categorised or oversimplified approach being taken.

Queensland Education's New Basics strategy provides both the perfect opportunity to include literacy, and to apply it in a cross-key learning area way. In fact, 'New Basics' will allow for the joined-up and holistic approach necessary for the proper inclusion of literacy education in schools.

Visual literacy could provide the basis for a more unified conception of 'literacy' and be of most value to my key learning area of specialisation, science. As I have already discussed the use of visual aides can be supported in theory because pictures are "analogs of experience and are only one step removed from actual events" (Stokes 2002, p.14). Direct observation of the living/scientific world would be ideal however.

This view is founded on the theories of Richard Feynman, especially as presented in his paper 'What is Science?' (Feynman 1968). This paper is essentially a paper on science literacy, or literacy more generally. A distinction, he believes, must be made between teaching the words to describe science and the teaching of science (the process of scientific investigation) itself. This concept can be applied more broadly to the concept of literacy, in that we must not get bogged down in the new terminology and categorisation, and actually work towards achieving real literacy outcomes.

Ultimately, in dealing with literacy we must not fall into the trap of dealing with language. Neither the instruction of new teachers nor the instruction of school students, must become one big English lesson. Literacy is not so much about language as it is about a persons interaction with the world around them. It is about how a person interprets what they see and hear, and how they subsequently communicate it.

The limitations of the school environment that Shirley Brice Heath identifies (week 1 lecture notes) are the real issue at hand. How can the school environment and the pedagogies applied there, be made inclusive of all of the students entering that environment? Only once this initial question is answered can we then move on to more specific literacy instruction issues. It is answered in part by Cope and Kalantzis (2000, in week 3 lecture notes) in their discussion of multiliteracies. They state that:

> Literacy educators and students must see themselves as active participants in social change; as learners and students who can be active designers – makers – of social futures.

References:

Ebbers, M. 2000, 'Science text sets: Using various genres to promote literacy and inquiry', *Language Arts*, vol. 80, no. 1, pp. 40-50.

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