

The logo for 'LITERACY & NUMERACY STUDIES' features the words 'LITERACY & NUMERACY' in a white, sans-serif font above the word 'STUDIES' in a larger, bold, black, sans-serif font. The text is set against a black rectangular background.

Alison Lee, Hermine Scheeres, Jean Searle and Rosie Wickert (Editors)

## **Contents**

### **Volume 15 Number 1 2006**

#### **Editorial**

**JEAN SEARLE** 1

#### **ARTICLES**

**Researching Literacy and Numeracy Costs and Benefits:  
What is possible**

**ROBYN HARTLEY and JACKIE HORNE** 5

**Mathematics for Maths Anxious Tertiary Students: Integrating  
the cognitive and affective domains using interactive multimedia**

**JANET TAYLOR and LINDA GALLIGAN** 23

**Flexible Mathematical Understanding in an Ironworking  
Apprenticeship Classroom**

**LYNDON MARTIN, LIONEL LaCROIX and LYNDA FOWNES** 45

**Intuitive Mathematical Knowledge as an Essential Aspect of  
Contemporary Adult Learning: A case of women street vendors in  
the city of Gaborone**

**REBECCA NTHOGO LEKOKO and KGOMOTSO GETRUDE GAREGAE** 61

**Horatio Alger and the GED (General Education Development)  
Diploma: Narratives of success in adult literacy education**

**JENNIFER A SANDLIN** 79

#### **REVIEWS**

*Academic Culture: A students' guide to studying at university*

by Jean Brick

Reviewed by **MARIA SIMMS** 97

---

---

<b>Notes on Contributors</b>	<b>100</b>
<b>Subscription Information</b>	<b>103</b>
<b>Editorial Policy and Notes for Contributors</b>	<b>104</b>

## EDITORIAL

---

JEAN SEARLE

We are constantly being reminded by governments and the media that we now live in a globalised economy and in order to compete we need a highly educated workforce. In this context, literacy and numeracy skills are not only used as international benchmarks to record a nation's competitiveness and wellbeing, but these skills are also deemed to be fundamental to employment. A lack of, or inadequate literacy and numeracy, means to be marginalised, that is, barred from access to new forms of knowledge and new modes of thinking.

Therefore, inadequate levels of literacy among a broad section of the populations potentially threaten the strength of economies and the social cohesion of nations. (Organisation for Economic and Cultural Development 1995:13)

As demonstrated in the quotation from the Organisation for Economic and Cultural Development (OECD), the concepts of literacy and numeracy are not value-free – they have social, cultural, political, economic and educational implications. The papers which have been included in this issue of *Literacy and Numeracy Studies* illustrate that what is regarded as being literate or numerate depends on the definition of literacy or numeracy that is adopted at a particular time in history and in a particular context. The authors variously argue that both literacy and numeracy may be viewed in relation to learning – as a cognitive or thinking skill, as a social practice, or critically in relation to ideological positions.

Generally, the views expressed by governments depict literacy and numeracy as sets of decontextualised skills, which once learnt, generally in schools, will transfer unproblematically to other contexts. Individuals' literacy and numeracy skills may then be assessed and if necessary remediated. As Hartley and Horne point out in their article which reviews recent literacy research, lack of literacy has been linked to poverty, poor health and criminal behaviour. On the other hand there is also an acceptance by society of the importance of literacy, which has led some researchers, as reviewed by Hartley and Horne, to focus on quantitative aspects such as measuring the 'extent' of the problem, or the social and economic costs and benefits of literacy and numeracy, rather than the social 'uses' of literacy.

Following Hartley and Horne's review of recent research, there are three articles which address issues concerning how individuals make meaning of mathematics. While coming from different countries and mathematical contexts, all the authors, to a greater or lesser extent, are concerned with the differences between school (formal, or academic) maths and out-of-school uses of mathematics. Further, each article demonstrates the significant role that language plays in developing understanding of mathematical concepts. In the first of these articles, Taylor and Galligan are concerned that many students entering higher education have already developed mathematics anxiety, such that whether they are intending to study traditional mathematics based courses (eg engineering and science) or non-mathematical courses (business or nursing) they need to develop confidence in their mathematical skills. Taylor and Galligan argue that this is best achieved by providing socially organised activities around mathematics in which students are encouraged to engage and reflect on learning. This is operationalised through an interactive CD-Rom in which actors take on the characters of commencing students who discuss mathematics in real life contexts then, as a group, reflect on different approaches to problem solving. Students are encouraged to enter this safe place and have a go themselves using self-tests, explanations and explicit examples of problem solving.

In the second article, Martin, LaCroix and Fownes are concerned about whether and how transfer of mathematical learning takes place. Their study documents discussions among a group of apprentice ironworkers who are working on a construction task. While Taylor and Galligan focus on developing understandings of formal mathematical concepts by putting them into real-life contexts, Martin et al address how context informs and transforms mathematical understandings. At issue here is the difference between school mathematics – learning how to solve algorithms and decontextualised problems, and out-of-school mathematics, which in this case, is used as an aid to performance in the workplace. Each context places different demands on the individual; there are differences in format, social support networks and required background information. Each of these issues is explored in this article and, through the use of extracts from transcripts of the group discussions, it is possible to see how the practical workplace experiences of the apprentices are brought to bear on the problem. The authors argue that by bringing different ways of thinking mathematically to the task, the apprentices are able to work flexibly, embedding 'formal' mathematics into the context of the task, while their understandings are transformed by their workplace experiences.

A totally different out-of-school context is provided by Lekoko and Garegae who are interested in the intuitive mathematical knowledge of women street vendors in Botswana. These authors document the oral

language surrounding the financial transactions of the street vendors, which together with money (notes and coins) and the actual items being sold, form a complex social semiotic system through which people make meaning. Building on the work of Lave (1988) and others, who view use of mathematics as socially situated practices, Lekoko and Garegae argue that there is no reason that informal or intuitive uses of mathematics are not as valid as formal mathematics. Further, they are concerned that such highly contextualised and idiosyncratic uses of mathematics often remain unacknowledged, as, in this case, the women are deemed to be illiterate and innumerate. Similarly, Prinsloo and Breier (1996) researching social literacies in South Africa, argued that 'local literacies' are often overlooked in the rush to implement formal literacy programs. The importance of such research is that it goes beyond the economic imperative to produce knowledge workers, to investigate the links with lifelong learning and the possibilities of developing civic responsibility or social capital within communities. Nevertheless, Lekoko and Garegae argue that oral and mental 'intuitive' mathematics, while important in the lives of the street vendors, is insufficient for the women to judge whether they are making a profit or if they wish to develop their businesses further.

The final article in the issue takes a critical stance. Many adult literacy practitioners would be well aware of how the media uses human interest stories, either to pursue particular agendas 'How could Barry leave school unable to read and write?' or the virtues of literacy, 'Housewife tells how literacy changed her life'. In this article, Sandlin challenges us to reconsider the status quo and examine how such texts are socially and ideologically constructed. Sandlin is writing from an American perspective in which she explores the stories told about successful adult literacy students and likens them to the American 'myth of success' as epitomised by the Horatio Alger stories. While we recognise the manipulations of the media, what Sandlin is asking is 'why do teachers write [or retell] such stories about their students?' Are teachers who write or tell these stories acting out some form of moral crusade in 'helping to shape beliefs and behaviour to meet the needs of society?' Sandlin analyses a range of stories and argues that they represent a particular genre of optimism, hope and the protestant work ethic. While such texts are sometimes used to provide evidence of successful teaching and learning, they may also promote false expectations or undermine the confidence of those who do not achieve. The alternative, Sandlin suggests, is to engage in critical discussions in the classroom in which students are encouraged to create possible alternative outcomes or more realistic indicators of success.

The articles presented in this issue move from a review of recent literacy research (Hartley and Horne) to an operational perspective on how to assist student learning (Taylor and Galligan), through a cultural view of

mathematics as embedded in particular socio-cultural contexts (Martin et al and Lekoko and Garegae) to a 'critical literacy' perspective (Sandlin). In taking us on that journey, each of the authors emphasises the social nature of the uses of mathematics and literacy, as well as the importance of language and story telling in the learning process.

### References

- Lave, J (1988) *Cognition in Practice: Mind, mathematics and culture in everyday practice*, Cambridge University Press, Cambridge.
- Organisation for Economic and Cultural Development and Statistics Canada (1996) *International Survey of Adult Literacy*, Organisation for Economic and Cultural Development Paris.
- Prinsloo, M and Breier, M, eds (1996) *The Social Uses of Literacy: Theory and practice in contemporary South Africa*, Sached Books, Cape Town.

### CALL FOR PAPERS

#### Special Issue Announcement

The editors of LNS are pleased to announce that Dr Alisa Belzer of Rutgers University in the U.S. and Dr Ralph St. Clair of University of Glasgow in Scotland will edit a special issue of LNS to be published in 2007. This issue will focus on how national accountability systems are influencing practice at the program and classroom levels. The guest editors are seeking submissions of papers that explore the choices and compromises and the costs and benefits of increased demands for standardized accountability and reporting procedures. They are also interested in papers that document how teachers and learners are developing and maintaining 'responsive' practices in this time when increasingly narrow accountability and curricular systems seem to be reducing the options open to educators and learners. They would like especially to urge practitioners to contribute, either as solo authors or in collaboration with researchers or policy people.

Papers should be submitted by July 1 2007 at the latest. If you would like to contact our guest editors directly, email Dr Belzer at [belzera@rci.rutgers.edu](mailto:belzera@rci.rutgers.edu) and/or Dr St. Clair at [rstclair@educ.gla.ac.uk](mailto:rstclair@educ.gla.ac.uk).