

THE DEVELOPMENT OF A LANGUAGE LEARNING OBJECT REPOSITORY (LLOR) FOR SECOND LANGUAGE TEACHERS IN KWAZULU-NATAL, SOUTH AFRICA

Pregalathan Reddy

South African (SOUTH AFRICA)

preggyr@dut.ac.za

Abstract

A Language Learning Object Repository (LLOR) was developed in an attempt to respond to the challenge of increasing costs of printed educational resources, the lack of which results in generally poor performances by second language English school goers. The overall research approach adopted was critical realism, using Archer's morphogenetic action research cycle. The resulting LLOR is then a type of mechanism for generating and archiving educational resources, and is intended primarily for teachers although it supports students as well. The use of a user-contributed model in the design of the LLOR anticipates the challenge of providing direct support (editorial), as with new resources having to be added by the researcher only, by having users contribute resources as well; moreover consumers more easily accept user-contributed models when they are also contributors. The iterative design of the LLOR followed a series of piloting of different application stacks including MediaWiki, TikiWiki CMS and Joomla. Moodle was chosen as the most suitable product as it facilitates the sharing of content using Sharable Content Object Reference Model (SCORM) and can also easily be packaged in an offline self-contained pack for distribution to users who have limited Internet access. Three user groups comprising experts (those proficient with web and computer technologies), teachers (a representative group of second language teachers of English) and students (a mix of second and first language English learners) were asked to test-drive the LLOR and respond to questions asked about its ease of use and potential. Modifications were made based on their input. The key to facilitating access and usage of resources like this LLOR is to make it accessible through different devices, especially mobile devices (e.g. mobile phones, tablets and netbooks); future development will prioritise a mobile-ready version of the LLOR.

Keywords: Innovation, technology, critical realism, action research, re-usable learning objects, language learning.

1 INTRODUCTION

This study is involved with providing an educational resource, an online learning object repository, for language learners in schools in KwaZulu-Natal (KZN), where the school population consists primarily of isiZulu speaking students taught mainly by isiZulu speaking teachers (SAInfo reporter, 2009), although English is the predominant medium of instruction (Balfour, 2004; EMIS, 2005). There is a growing trend for parents to choose English as medium of instruction, even when neither the parents nor their children are fluent in English; this is because parents view fluency in English as a means of educational and economic empowerment (Naidoo, 2012). Teachers themselves are often not fluent in English (up to 80% were noted as "not fluent" in EMIS, 2005), and many lack the specific skills and training required for literacy acquisition and development (Govender, 2011). Nearly 20 years after political liberation, schools in this province suffer from a scarcity of resources for language learning (Govender, 2011, Naidoo, 2012, Peat, 2012, Dorasamy, 2012), in particular, facilities (e.g. classrooms) and traditional resources (e.g. books). Even when hard print resources are available, funds need to be readily available for acquisition, and setting up and maintaining school libraries, while a laudable aim, is labour intensive and takes up space which could be used for classrooms. Moreover, it is not feasible to maintain a large selection of copies of suitable books (whether text books or recreational reading), which then can rapidly become dated in terms of changing youth interests.

One solution to address the lack of ESL students' English proficiency, to develop teacher expertise, and compensate for lack of hard print resources is the use of digital language learning resources. While many schools do not have computer laboratories and Internet access, most teachers and students can access the Internet through mobile devices. However, while many freeware language learning resources are available on the Internet, these are not catalogued or graded in ways which

would make it easy for language teachers to select appropriate resources for specific contexts or learning needs. An added complication is that there are many differences and variations with spelling in American, United Kingdom and South African English. This makes it critical to have some guidance with regard to the suitability of the resources for learners in local contexts, particularly where second language learners are involved, as the dialect of English they use may already not conform to the academic discourse required in South Africa. So that appropriate digital language learning resources can be made available, the author designed and piloted a user-contributed Language Learning Object Repository, which classifies contributions according to the type of resource and intended users (i.e. as to its intended purpose and level of grade).

2 USE OF DIGITAL RESOURCES FOR LANGUAGE LEARNING

The use of electronic resources is not without problems. As Pratt points out:

...there is a tendency to overplay the benefits of using computers to solve educational problems, and to underplay some of the real problems, such as student after-hours access to computers and the need for prior learning in this area, both serious issues for educationally disadvantaged ESL learners who are most in need of individual tuition (2007, p. 8).

Kenning and Kenning also comment on the limitations of using computers for instruction (1983, p. 4). However, while there are disadvantages associated with using computer programs rather than human teacher or tutors, there are also a number of advantages offered by computer mediated learning, as computerised learning aids are more convenient and more time- and cost-effective than human tutoring, and can also be distributed more cheaply and easily to students by the institution than a workbook. In addition:

- There is no limit to the number of learners a computer program can accommodate, whether sequentially or at the same time.
- A program does not become tired or irritable no matter how many times the same question is asked or the same procedures are rehearsed.
- The user can drop a topic or break off without appearing to reject a human tutor's advice with the result of offending him/her.
- Students appear to enjoy using computers, and to prefer them to formal "live" instruction.
- A computer program is not generally perceived as judgemental by learners in the same way that human teachers or tutors are, and is controlled by the learner, not the teacher (Pratt, 2007 p. 10, slightly adapted).

There is at present an increase in the use of Educational Technology in education at higher learning institutions the world over. As Nworie points out, "We live in an era that is undergoing enormous change in each different sphere of society." He continues: "Virtually all areas of society have been affected by the forces of technological change, including the corporate world, higher education, elementary and secondary schools, and other areas of the society (2007, p. 105). The evolution of computers has progressed with immense leaps in terms of capacity (disk space), processing power (chip speed), and the rich software applications being produced by vendors. The proliferation of networkability, spearheaded by the development of the Internet and coupled with the relative low cost of computers, has resulted in an emphasis on the use of Learning Management Systems (or LMS's, see Landon, Henderson & Poulin, 2006, p. 3). The term LMS refers to any system designed to manage learning in an online environment (e.g. WebCT, Blackboard, Moodle, SAKAI). Within the wider area of LMS's are further components, usually discrete objects or systems, such as Learning Object Repositories (LORs) and Language Learning Objects (LLOs).

2.1 Learning objects

According to Nash, the term "learning object" is derived from "the notion of 'object-oriented' computing and programming, which suggests that the ideal way to build a computer program or anything digital is to assemble it from standardized, small, interchangeable chunks of code" (2005, p. 217). These small, or "granular" objects can then be contained in what Nash terms "meta-objects", which could be LMSs, for example, Blackboard, WebCT and Moodle. The more consistent the granularity, the more effectively these objects can be incorporated in many different courses (Downes, 2005; Leslie, 2005). While granularity is desirable, the usability paradox is a limiting factor in the degree of granularity

achieved (Krauss, 2004): a learning object which is too specifically designed to serve a local need cannot easily be used in other contexts, while one which is too general in application may not need a specific local need (Parkin, 2005). Moreover, as Krauss (2004) points out, “there comes a point where breaking an object down to its most ‘common elements’ is not desirable or practical”.

It must be emphasised, however, that the above issues relate to the successful combination of LOs in specific courses or courseware. The LOR envisaged here is more in the nature of an archive which teachers and learners can browse for specific applications which might provide a resource to meet a specific teaching/learning need at any given time, much as is the intention of the CAREO project piloted by Education Alberta (Friesen & Magee, n.d.). In this study, then, categorisation and ease of access is more important than granularity or conformity of objects, and object format is not a key issue inasmuch as (a) the object can be stored and accessed within the format of the LOR and (b) it is made clear to the user in which format it can successfully be run.

A key issue in the sharing of learning objects is the development of “taxonomies and systems for organizing and retrieving content” (Nash, 2005, p. 218). One of the research problems, then, will be to categorise items so that they are easy to identify in terms of appropriateness/fitness for use. The learning objects contained in the language LOR developed in this project must be easily usable (i.e. not confusing to newly-literate users), sustainable (i.e. continue to be in use, when offered free), regularly monitored (i.e. so that objects added remain for educational use) and maintained (i.e. kept in working order). While similar repositories are being planned elsewhere, for example in the CAREO project (Friesen & Magee, n.d.), this project is original in the sense of being geared for use in KwaZulu-Natal, in containing freeware to which users can contribute, and in being restricted to language learning.

2.2 Types of language learning objects

The following types of resources comprise “language learning resources”, namely:

- games, drills and repetitive routines
- language learning modules or courses
- courseware specifically for developing specific competences (e.g. composition, vocabulary building, spelling or grammar aids)

According to (Alessi, 1991) “computer-based drills” can be as easily accomplished through workbooks or flashcards (Gravander, 1985). However, computers have the advantage of repeatability without requiring additional materials. The learner can therefore access the same drill for an infinite number of times without requiring more paper or board. He goes on to group, “five major types of computer-based instruction programs, tutorials, drills, simulations, games and tests,” (Alessi, 1991), and provides the following definitions for these:

- “Tutorials are programs that generally engage in the first two phases of instruction... guiding the learner in initial acquisition” (Alessi, 1991).
- “Drills and games... practice for fluency and retention, [whilst] tests almost always represent the last phase, assessing the level of learning” (Alessi, 1991).
- Simulations have evolved and advanced substantially from their origins, in scope and technology yet their underlying principles remain essentially the same. They generally follow a known sequence with multiple pathways depending on each choice that is made.

Simulations are sufficiently adaptable to the different disciplines such as science (chemistry, physics, biology), arts (history), to business (project management, stock-market brokering), and to geography (climatology, meteorology). “In an educational context, a simulation is a powerful technique that teaches about some aspect of the world by imitating or replicating it” (Alessi, 1991, p.119). Aldrich recommends the term “Sims” for all educational simulations, and lists ten possible contenders for a common definition of the term “Sims” as listed by Aldrich (2009): “10. *Virtual experiences*, 9. *Games*, 8. *Simulations*, 7. *Social impact games*, 6. *Practiceware*, 5. *Game-based learning*, 4. *Immersive learning simulations*, 3. *Educational simulations*, 2. *Serious games and*, 1. *Sims*”. However, as the term “simulation” generally refers to an elaborate, open-ended scenario (e.g. *Flight Simulator*, *Sim City*) it was not used in this study to replace terms such as tutorials, drills, games or courseware.

3 RESEARCH APPROACH & METHODOLOGY

The research approach adopted was the critical realist philosophy, which is gaining ground as an orientation for use with ITC research (Carlsson, 2009).

3.1 Critical realism

Critical realism is a philosophy credited mainly to Roy Bhaskar (1978, 1989, 1989), but with contributions from Margaret Archer (1995; 2002) and Rom Harre (1986). The philosophy involves ontological and epistemological elements which reveal the structures, entities and mechanisms which constitute the social world. Bhaskar (in Norris, 1999) commented on how the critical realist orientation gained acceptance internationally in the early 1980s in different disciplines such as sociology, economics, biology and physics, and its use been growing steadily in the field of social science. From occurrences of "critical realism" in an academic literature study, De Vaujany (2008 pp. 4-5) calculated the "penetration level" of critical realism at 44 per cent in Economics and 28 per cent in Management, of which 6.1 per cent comprised information systems research. Carlsson (2009, p. 811) recommends critical realism as "an alternative to traditional positivistic models of socialscience as well as an alternative to post-approaches and post-theories". This is because, as Carlsson points out, critical realism holds "that social reality is not simply composed of agents' meanings, but that there exist structural factors influencing agents' lived experiences". He adds: "CR [critical realism] starts from an ontology which identifies structures and mechanisms through which events and discourses are generated as being fundamental to the constitution of our natural and social reality."Critical realism was used as research orientation for this project because it combines depth insight into social processes with a pragmatism which seeks to improve the quality of life by practical means (Bhaskar, 1986, p.169). It is also a more subtle tool than either positivist or postmodern approaches, as Carlsson (2009) comments, because, on the one hand, the system comprised in the artefact is viewed in the perspective of the social system which generates a need for the "solution" provided by the artefact, and, on the other, the reality of both the social system and the artefact are not dependent on "discourse", but "real" events and experiences triggered by a complex, layered causality. Computers, and computer systems such as the LLOR designed in this project, while human constructs, are real, i.e. "artefactually real" (Fleetwood, 2005: 2).

3.1.1 The Critical Realist Ontology

Bhaskar's contribution to philosophy was that he engaged in "re-thematising ontology and giving it a certain new content or shape"(Norrie, 1999, p. [1]). In doing so, he provided an explanation of reality that not only distinguishes the world from our experience of it, but has developed an ontology comprising three differentiated levels of stratification, each nested into the another(2008: 37). Critical realism has a tripartite ontological structure, divided into the "domain of real", the "domain of actual" and the "domain of empirical" (see Table 1).The "domain of real" consists of events (i.e. occurrences) and human beings' experiences of these. The focus in critical realism is on causality, and the term "mechanisms" refers to the underlying causes of events (whether triggered by natural causes, social systems or human agents). While events and experiences can be observed directly by human beings, the existence of mechanisms can be postulated only, using "transcendental" means (Bhaskar& Lawson, 1998, p. 4). The "domain of actual" refers to experiences and events (as observed), which, Bhaskar suggests, often do not reveal the underlying deep level causes (i.e. mechanisms, which can be inferred only). The "domain of empirical" refers to human knowledge (i.e. thoughts or theories about the nature of things)."

Table 1 Bhaskar's three domains (Table 1.1 in Bhaskar, 1978, p. 56)

	Domain of Real	Domain of Actual	Domain of Empirical
Mechanisms	✓		
Events	✓	✓	
Experiences	✓	✓	✓

While the domains of real and actual have “real world” existence, the domain of empirical has a mental existence only; the distinction between these modes is explained in the terms “transitive”, that is the object of thought, and intransitive, or that which exists independently of thought (see Bhaskar 1979, pp. 9-14). The distinction between the transitive (changing) and intransitive (relatively enduring) dimensions of existence in critical realism emphasises the point that we should not conflate what can be known about the world with our experience of it. Bhaskar(2008: 28) refers to this conflation as the “epistemic fallacy”.

3.2 Methodology

3.2.1 Archer’s Morphogenetic Action Research Cycle

The approach used in this study was action research (McNiff, 2006; Zuber-Skerritt, 2001), an approach often used in research in Educational Technology, as cycles of testing out, consultation with users and subsequent modification are required to develop various computer applications (McNiff, 2006). However, as the orientation adopted was critical realist, and the application was designed for use in a social setting, use was made of Archer’s morphogenetic action research cycle (1995), which deals with the interplay of structure and agency (see Wong, 2005, p. 13). In Archer’s morphogenetic cycle (1995), “time” is viewed as a significant factor, and was applied to the transition which it is hoped this artefact would bring about in directing stakeholders to virtual rather than hard print resources (i.e. even a brief intervention might change attitudes, and hence, practices over time).

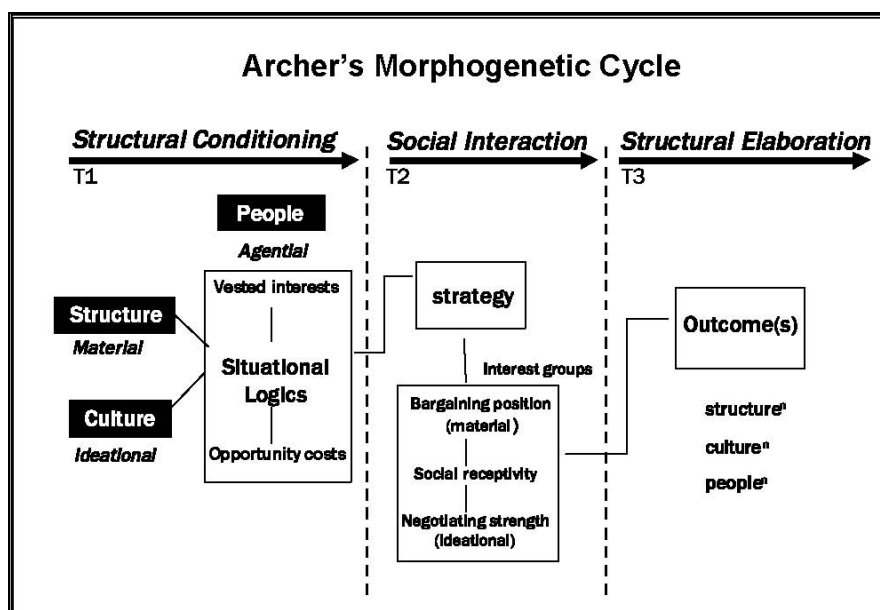


Figure 1 Archer’s morphogenetic cycle as depicted by Wong (2005, p.13)

According to Wong (2005, p.5):

The morphogenetic approach... allows for the modeling of innovation development as socio-cultural cycles involving the interaction between structural, cultural and agential forces over time. In investigating the dynamics of this process, the researcher needs to establish the systemic conditions pre-existing the change, the situational logics arising from the specific configuration of structural and cultural conditions, the social interactions among actors, and the ways in which the outcome reflects the transformation or reproduction of structural, cultural and agential conditions (Wong 2005, p.5).

In the recurring cycles of action research, the researcher refines the artefact in the course of development, adjusting it to the changed and changing circumstances of its use (including the prospective addition by users and consequent changes. The artefact thus has “emergent” properties as it is refined, used and re-used, both replenished of new and pruned of obsolete elements, and develops with time. The digital aspect of the LLOR as resource means that changes can be implemented speedily to adapt it to the dynamic social reality of the educational system.

3.2.2 Quantitative and Qualitative Methodology

A combination of quantitative and qualitative methodology (Cupchik, 2001) was used to gather data from three groups, DUT e-Learning experts 2010, teachers from KZN, and a group of high school pupils. It was hoped that the combination of general trends and rich data would offer a more comprehensive picture than one method used in isolation: a questionnaire was used to establish general trends, while focus groups and interviews were used to obtain rich data in an attempt to find the reasons behind the trends. The DUT e-Learning experts were invited to participate in alpha (i.e. functionality) testing a prototype of the LLOR, which was modified for beta (i.e. normal use) testing by the second group, teachers from KZN. For the third group, a multicultural group of high school pupils was invited to try out the LLOR either at DUT or in a school computer laboratory setting. For each group a questionnaire was administered to establish trends in participants reactions to using the LLOR in terms of its anticipated use for language learning as well as ease of use, a focus group discussion follows, and individual interviews took place with a smaller group (6-10 participants), to probe further their experiences when using the LLOR. The data generated was analysed in terms of the structures, agencies and other causal factors (e.g. time) revealed by the data (following Archer's 1995 action research cycle, 1995). It was anticipated that the LLOR might need to be adapted at each stage depending on the feedback obtained.

4 RESULTS

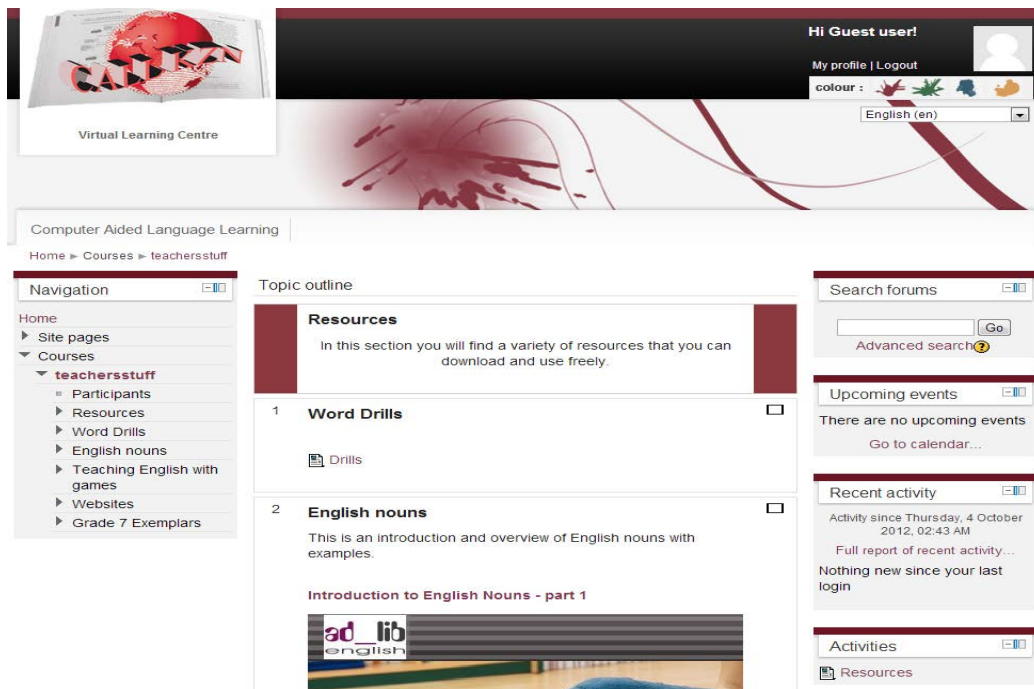


Figure 2. Homepage of the prototype LLOR (CALL-KZN)

4.1.1 The Prototype LLOR

The artefact developed in the course of this study was a prototype language Learning Object Repository (LLOR). This comprised a learning management system (Moodle) re-purposed as a repository (see Figure 2). It must be indicated that although this use of Moodle is not the norm, it is nevertheless possible, since Moodle is highly customizable. Table 2 features some of the resources and activities available in the prototype.

Table 2 Resources and activities available in the prototype

Type	Source/s/Attribution	Format	Added value
Lesson plans and exemplars	Thutong	Word documents, pdf	Arranged by Grade
Simulations	Adlibenglish	Embedded video	To be arranged by grade
Web links	Various such as SABC, BBC, etc.	Clickable links	Annotated to aid selection
Word drills	Writing Tutor	Win32 msi	Artefact based on empirical research

4.1.2 Registration and Guest access

Whilst access to resources is available to “Guest” users, registered users would in addition be able to access added-value such as the option to subscribe to various notifications (based on customisable triggers), access to blogs and wikis (as authors or co-authors), the option to customise various aspects of the website such as the colours and text.

4.1.3 Navigation

Navigation is considered the make or break of most websites, as websites that are difficult to find one’s way around are rarely re-visited. Moodle, an open-source LMS which has gained widespread popularity, was used, as navigation has been a key inherent consideration for the design of the LLOR. This is because one can set-up a Moodle course/site and automatically inherit a user-friendly navigation system. However, although good navigation has some common usability principles, users are not as typical as web designers would hope, making navigation design an in-exact art instead of an exact science.

4.1.4 Exporting and Importing content

Moodle supports the import and export of content in a standards compliant (IMS) format using SCORM as mentioned previously. This is invaluable in a country such as South Africa where Internet access is prohibitively expensive, and means that offline access to co-created content such as this LLOR can be made available to economically disadvantaged groups. In proprietary LMSs such as Blackboard, content may be imported using the IMS standard but not exported and re-used in other LMSs such as Moodle.

4.1.5 User Response to the Prototype LLOR

The majority of users indicated that they found the LLOR easy to use and the example content potentially useful. However it was found that there were not as many users that fitted the profile of “user-contributors” as had been hoped. On the whole it was discovered that most users were still “consumers” as opposed to “co-creators”.

5 CONCLUSION

The adoption of a critical realist perspective can be seen to have a shaping effect on the nature of the artefact. Rather than being seen as a static finite system, the LLOR underwent constant change in its development in response to the modes of reality mentioned by Fleetwood, namely material, artefactual, ideal and social realities (2005, pp. 2-3). Material reality has impacted in terms of available resources; artefactual reality, in terms of what is not only possible but also feasible in hardware and software options; ideal reality, in terms of participants’ concepts of what is good educational practice; and social reality, in terms of the ever-changing organisational aspects of both educational and technical groups. It is hoped that the “emergent properties” of the resulting artefact will make it a versatile educational tool which will evolve with the changing educational landscape. In the future workshops and road-shows should be organised that focuses on showcasing and guiding teachers on

how to use and develop the LLOR optimally. In addition advocacy at the national level should be planned and implemented which would potentially expose new teachers to the LLOR, and in time lead to its growth.

REFERENCES

- [1] Aldrich, C. (2009). *The complete guide to simulations and serious games: how the most valuable content will be created in the age beyond Gutenberg and Google*. San Francisco: Pfeiffer.
- [2] Alessi, S. M. (1991). *Computer-assisted instruction: methods and development* (2nd ed.). New Jersey: Prentice-Hall, Inc.
- [3] Archer, M. S. (1998). Introduction: realism in the social sciences. In M. S. Archer, R. Bhaskar, A. Collier, T. Lawson & A. Norrie (Eds.), *Critical realism. Essential readings*. London: Routledge.
- [4] Ayers, D. F. (2011). A Critical Realist Orientation to Learner Needs. *Adult Education Quarterly*, 61(4), 341-357. doi: io.i 177/0741713610392769
- [5] Balfour, R. 2004. Multilingualism, power, and language rights in South Africa after 1994. In J.Karlsson and D.Moodley (eds.)
- [6] Bhaskar, R. (1978). *A realist theory of science*. Hassocks: Harvester Press.
- [7] Bhaskar, R. (1986). *Scientific realism and human emancipation*. London: Verso.
- [8] Bhaskar, R. (2008). *A Realist Theory of Science*. In. New York, NY: Routledge.
- [9] Bhaskar, R. & Lawson, T. (1998). Part I: Transcendental realism and science. Introduction: basic texts and developments. In M.S. Archer, R. Bhaskar, A. Collier, T. Lawson and A. Norriew (eds.) *Critical realism: essential readings*. London: Routledge.
- [10] Carlsson, S. A. (2009). Critical realist Information Systems research. In *Encyclopedia of Information Science and Technology, Second Edition* (pp. 811-817). Hershey, PA: Information Science Reference.
- [11] Cupchik, G. 2001. Constructivist realism: an ontology that encompasses positivist and constructivist approaches to the social sciences. *Forum: Qualitative Social Research On-line Journal*, 2(1). <http://www.qualitative-research.net/fqs-texte/1-01/1-01cupchik-e.htm> (7 August 2004).
- [12] Danermark, B., Ekstrom, M., Jakobsen, L., & Karlsson, J. C. (2002). *Explaining Society: Critical realism and the social sciences*. London: Routledge.
- [13] De Vaujany, F. (2008). Capturing reflexivity modes in IS: a critical realist approach. *Information and Organization*, 18, 51-72.
- [14] Downes, S. 2005. Learning objects. [Online]. Available at: http://www.downes.ca/files/Learning_Objects.htm (Accessed on 17 November 2009).
- [15] EMIS, 2005. The base line survey on educator communication skills and understanding of English as a Medium of Instruction by second language speakers. The Research Strategy Policy Development Report. Durban: Department of Education KZN.
- [16] Fleetwood, S. (2005). Ontology in organization and management studies: a critical realist perspective. *Organization*, 12, 197-222.
- [17] Friesen, N. & Magee, M. (n.d.) Campus Alberta Repository of Educational Objects. [Online]. Available at: CAREO <http://www.ucalgary.ca/commons/careo/CAREOrepo.html> (accessed on 19 November 2009).
- [18] Harré, R. (1979). *Social being: a theory for social psychology*. Oxford: Basil Blackwell.
- [19] Kenning, M.J. and Kenning, M.-M. (1983). *An introduction to computer assisted language teaching*. Oxford, Oxford University Press.
- [20] Krauss, F. 2004. Reflections and insights on elearning strategies and instructional technology design. IDEAS: Instructional Design for Elearning Approaches. [Online]. Available at: http://ideas.blogs.com/lo/2004/01/the_reusability.html (Accessed on 18 November 2009).

- [21] Landon, B., Henderson, T. & Poulin, R. 2006. Peer comparison of course/learning management systems, course materials life cycle, space and related costs. Final Report, 19 July 2006, Massachusetts Institute of Technology (MIT).
- [22] McNiff, J. 2006. Action research for professional development. Homepage. [Online]. Available at: <http://www.jeanmcniff.com/booklet1.html> (Accessed on 28 August 2008).
- [23] Naidoo, J. (2012). The hegemonic position of English as a medium of instruction at primary school level in KwaZulu-Natal, and its impact on parents' preferences of schooling for their children. Durban University of Technology.
- [24] Nash, S.S. 2005. Learning objects, learning object repositories and learning theory: preliminary best practice for online courses. *Interdisciplinary Journal of Knowledge and Learning Objects*, Vol 1, 2005.
- [25] Norris, C. (1999). Roy Bhaskar interviewed. In *The Philosophers' Magazine* (Vol. 8).
- [26] Nworie, J. 2006. Academic technology in higher education: organizing for better results. *Journal of Educational Technology Systems*, 35(1): 105-128
- [27] Parkin, G. 2005. The learning object paradox. Parkin's Lot: strategies for success in an online world. Blog posting, Tuesday, July 26, 2005
- [28] Pratt, D.D. 2007. A realist approach to writing: developing a theoretical model of written composition to inform a computer mediated learning application.
- [29] Sayer, A. (2000). *Realism and Social Science*. London: Sage
- [30] SAinfo reporter. (2009). The languages of South Africa. [Online]. SouthAfrica.info, 17 Nov 2009. Available at: <http://www.southafrica.info/about/people/language.htm> (Accessed on 17 November 2009).
- [31] Wong, C. K. 2005. A critical realist approach to organizational innovation research. [Online]. Proceedings of 4th International Critical Management Studies Conference, 4th -6th July 2005, Cambridge University, United Kingdom. Available at: www.mngt.waikato.ac.nz/ejrot/cmsconference/2005/proceedings/criticalrealism/Wong.pdf (Accessed on 28 August 2008).
- [32] Zuber-Skeritt, O. 2001. Action learning and action research: paradigm, praxis and programs. In S. Sankara, B. Dick & R. Passfield (Eds.) *Effective change management through action research and action learning: concepts, perspectives, processes and application*, Lissmore, Australia: Southern Cross University Press.
- [33] SAinfo reporter. (2009). The languages of South Africa. [Online]. SouthAfrica.info, 17 Nov 2009. Available at: <http://www.southafrica.info/about/people/language.htm> (Accessed on 17 November 2009).
- [34] Balfour, R. 2004. Multilingualism, power, and language rights in South Africa after 1994. In J. Karlsson and D. Moodley (eds.)
- [35] EMIS, 2005. The base line survey on educator communication skills and understanding of English as a Medium of Instruction by second language speakers. The Research Strategy Policy Development Report. Durban: Department of Education KZN.