



Research Report

**An Investigation Into the Possibility of a Growing Trend in Cooperative Education: ‘Reverse Cooperative Education’**

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Cooperative education as a strategy for combining classroom learning with workplace training is becoming well known internationally. So too are the concepts of life-long learning and continuous education and in the minds of many authors learning is not confined to what happens in a classroom, neither is it a ‘one-off’ experience. Cooperative education typically occurs when a learner is placed into the actual working environment. The question arises, what about a working adult entering the academic arena? If this process is formalized could there be a new slant to cooperative education - one of life-long learning and reversal of cooperative education where the world of work sends its adult learner into the education sector? There is some recent research, including that from a small South African case study presented here, that suggests that there is now a growing trend worldwide - a trend of ‘reverse cooperative education’. The author considers that practitioners of cooperative education globally need to consider what implications such a trend has for the practice of cooperative education. This issue is discussed in this paper along with suggestions for further research into ‘reverse cooperative education’ (*Asia-Pacific Journal of Cooperative Education*, 2002, 3(2), 45-52).

*Keywords:* South Africa; continuous education; experiential learning; life-long learning; reverse cooperative education; workplace learning; work-based learning; work-integrated learning

Cooperative education as a strategy for combining classroom learning with on the job training is becoming well known and understood. The close interaction between the learner, the education institution and the employer - public or private sector partner - characterizes cooperative education. This provides an invaluable opportunity for learners to match the theory and principles in a particular field learned in the classroom with actual real-life world of work practice.

Just as the concepts of cooperative education and experiential learning are becoming better known, so too are the concepts of life-long learning and continuous education. Coetzee (1999) believes that life-long education refers to a process whereby the individual continually improves his or her knowledge. Clearly then, learning is not confined to what happens in a classroom, nor is it a one-off experience; rather, it is a continuous process. Sira-an (2002) has pointed out that developing countries in particular, need to provide education that develops individuals as life-long learners.

With the establishment of the *South African Qualifications Authority (SAQA)* and the *National Qualifications*

*Framework (NQF)* (Department of Education [DoE], 1995) the concept of recognition of prior learning (RPL) is now an important part of the agenda of most higher education institutions in South Africa. In South Africa RPL consists of the granting of credit for a module of learning based on an assessment of both formal and non-formal learning or experience (Nair, 2000). In essence, credit (acknowledgement) is given for learning irrespective of where, when, or how, this learning occurred - whether it is practical or theoretical.

Cooperative education typically occurs when a learner is placed into the actual working environment for the first time, usually after at least two years of formal study. The question arises, what about a working adult entering - or returning to - the academic arena? This ‘learner’ already has practical experience in a specific field and may need or wish to gain some background theoretical knowledge to complement this practical knowledge. This is a form of continuous or life-long learning. If this process is formalized, could there be a new slant to cooperative education - one of reversal where the world of work sends its adult learner to the education sector?

The author felt that such a possibility existed and that this could represent a growing trend in cooperative education, at least in the South African context. Community colleges in the United States of America already successfully incorporate this reverse link with industry into post-secondary education (Mahoney, 1998; Ural, 1998) and at a recent international conference on cooperative education it appears that such a trend also is evident in Europe (Witteveen, 2001).

## Purpose of the Research

### Problem Statement

The researcher anecdotally observed that the profile of learners studying a module presented within the *Enterprise Resource Planning* (ERP) program - specifically that on *Electronic Data Interchange* - was different to that of the 'typical' learner in other diploma programs offered at the Technikon Witwatersrand (TWR).<sup>1</sup> The ERP learners were older and already working, most having a prior tertiary qualification.

Thus, the problem statement for this research is:

Is there a growing trend in cooperative education - a 'reversal' - where the learner is an adult - whether employed or unemployed - with practical experience, yet who requires integration into a formal study program?

Furthermore, if this is the case, is there merit in further research into this apparently growing trend in cooperative education?

### Research Objectives

The objectives of the research are to determine:

- 1 The profile of learners doing the Technikon Witwatersrand courses in *Enterprise Resource Planning* (ERP)
- 2 Whether the commonly accepted model of cooperative education is applicable for learners who already possess practical experience in their field.

## Literature Review

### Models for Cooperative Education

A review of literature was conducted for the areas of education and legislation applicable to higher education and to the world of work. All of this was viewed for the South African context and that of the ERP learner at TWR. The literature contains many models for education and it is claimed that adult education began as long ago as in the fourth century BC (Coetzee, 1999), where adult learners

learned at the feet of the 'master'. Education has evolved from these humble beginnings to today's highly interactive sophisticated multi-media and self-placed learning available, or supported by the World Wide Web (WWW). Cooperative education as an educational model also has evolved and now become well established in South Africa and internationally.

Of particular relevance for this study, is a definition of cooperative education. The *World Association for Cooperative Education* (WACE) sees cooperative education as work-integrated learning combining classroom learning with learning in the workforce, and the learner bringing workplace learning back into class for further analysis and reflection. Cooperative education thus seeks to improve the relationship between education and work as part of its mission statement (World Association for Cooperative Education [WACE], 2000). The practice of work-integrated learning or cooperative education is not restricted to post-compulsory schooling. In the USA and in Germany, for example, it is often integrated into high school curricula.

In South Africa, the *Committee for Tutorial Matters* (CTM), a working group of the *Committee of Technikon Principles* (CTP) compiled a document, *Best Practice in Cooperative Education*, and a companion volume, *Essentials of Cooperative Education*. These documents were developed in conjunction with the *South African Society of Cooperative Education* (SASCE), which is affiliated to the WACE. These documents serve as reference works and as a guide for practitioners of cooperative education in the Republic (Committee for Tutorial Matters [CTM], 2000).

Although the practice of cooperative education is now widespread, it is not without challenges. For example, work placements need to be negotiated with potential employers, and close contact between the employer and the education institution must be maintained. Learners must be prepared adequately for the working world if the placement experience is to be successful. Misunderstandings between learners and employers also must be resolved.

The benefits and difficulties of cooperative education as an educational strategy have been studied widely internationally and also in the South African context. For the South African context, issues range from the use of cooperative education for income generation (Taylor, 1998), as a recipe for success (Taylor, 1996) through to that of bringing business into the classroom (Taylor, 1999).

Interestingly, there are few reports in the literature investigating shifts in the focus of cooperative education, which is traditionally that of placing an undergraduate learner into the working environment to enable him/her to obtain work-related practical experience relevant to the direction of study.

### Concepts in Adult Education

According to Kennedy (cited in Titmus, 1989) adulthood begins at the age of 18 and continues until death. During this time the adult passes through various phases from young adulthood (18-35) to old age. In South Africa the term *adult education* denotes a process whereby a person

<sup>1</sup> Technikons in South Africa are the equivalent of polytechnics or universities of technology

who has interrupted his/her initial education becomes involved in education that supplements the information, knowledge and skills he/she already has. Continuous education refers to a life long process of intermittent participation in training/education programs. This is often also referred to as life-long education or life-long learning (Coetzee, 1999; Sira-an, 2002) and may occur informally, non-formally or formally. Informal education is incidental learning, non-formal is planned, flexible education - usually not leading to a qualification, and formal education is structured and planned learning, offered by an accredited institution that leads towards an educational qualification.

Non-formal learning/training programs are today offered in-house in many corporations. These programs are usually structured to the needs of the employee within the organization. Cooperative education usually implies adult education and would usually be part of a formal learning program, typically involving young adults.

### The Legal Context of the Research

Legislation worldwide governs education institutions and the industry or commercial sector. Adherence to governmental legislation is generally non-negotiable and this legislation occasionally changes. Education institutions provide educated and qualified staff for the labor market, and because both education and business sectors are governed by legislation, it makes sense that the two bodies cooperate to ensure that learners can find employment.

Higher education institutions in South Africa must comply with the *Higher Education Act* (DoE, 1997). This Act, among others, sets the policies under which universities and technikons operate. Vocational training or education is specifically a part of the mission of technikons, which use cooperative education or experiential learning as a means of realizing this.

The *South African Qualifications Authority* (SAQA) is in the process of implementing the *National Qualifications Framework* (NQF) (DoE, 1995b). This allows for the recognition of prior learning and works on the basis of competencies being attained in steps, by means of unit standards. These competencies/unit standards may be combined into a formal qualification. The Higher Education Act affects higher education institutions in that they have to adapt their qualifications to comply with the unit standard approach within four years.

### Legislation Affecting The World of Work

The most recent legislation promulgated that affects the world of work is the *Labour Relations Act* (Department of Labour [DoL], 1995a) and its amendments, the *Skills Development Act* (DoL, 1998) and the *Skills Development Levy Act* (DoL, 1999). The Labour Relations Act makes it imperative that companies hire the right staff as it makes the dismissal of staff difficult. Clearly, in these circumstances industry wish to employ the most competent person for the job first time. The cooperative education model can thus serve to help industry select and appoint appropriate entry-level staff. This occurs because companies may retain

learners that do work placements in the organization as full-time staff at the end of their placements. By implication, these learners will then already know the company, its policies and work-methods and the job, thus being skilled entry-level staff. The skills development levy requires companies to pay a levy into the *Skills Development Fund*, part of which they can recover if certain conditions are complied with. One of these is proof that they have sent their staff on SAQA/NQF approved training programs.

The above provides the dynamic and opportunity from which the world of work and education institutions can both benefit. Furthermore, as the concepts of adult education and life-long learning become a part of the daily life of working adults, the phenomenon of a 'reversal' of the cooperative education model is indicated and is deemed to be a topic worthy of further research.

### Research Methodology

The research reported in this study is exploratory in nature and sought to develop an understanding of the phenomenon of 'reverse cooperative education' in the South African context. The research methodology as proposed by Emory and Cooper (1991) was followed and took the form of a case study. Data were gathered by means of a survey of ERP learners. An instrument was developed, tested on a pilot group of learners, and a refined instrument was sent to learners by email, post, or facsimile (the final version of which is provided in the Appendix).

The sample consisted of 50 learners, of these, 12 completed a pilot version of the instrument. The balance of the sample was a *judgment sample* consisting of the first 38 ERP learners who could be reached by phone (so as to get further contact details). These learners were requested to complete a refined version of the instrument.<sup>2</sup>

The participant population consisted of all learners registered for any of the ERP modules presented from the inception of the ERP laboratory in 1999 to September 2000, and who had successfully completed at least one module.

Data analysis consisted of frequency counts and summary descriptive statistics were used to identify the essential characteristics of the learners for the ERP modules. Of the 50 questionnaires sent out, there were 15 responses resulting in a response rate of 33%.

### Research Findings

All of the respondents surveyed were employed, were studying part-time and those learners working in an ERP environment were using *Systems Applications Products* (SAP) software. Only two learners did not have at least a M+3 qualification.<sup>3</sup>

The reasons given by the respondents for their continuing study was to obtain a broader understanding of EDI and an overall view of ERP; to supplement their practical

<sup>2</sup> Changes to the original instrument were minor and deemed unlikely to influence the results

<sup>3</sup> M+3 is the equivalent of three years of post-compulsory education in South Africa, typically in higher education

experience in EDI with much needed introductory theory; to utilize a learning opportunity offered by the employer and to obtain an understanding of ERP philosophy.

The expected benefits to be derived - as anticipated by the respondents - included: obtaining a better insight into EDI and ERP, more understanding of information technology and business issues, learning more EDI theory and to enable them to set up an actual EDI interface (the link between the hardware and software).

Reasons given by respondents for this continued study was that it was a requirement of their BTechnology studies - by implication these learners may thus not necessarily spontaneously have chosen to pursue these courses - and for self-improvement.<sup>4</sup>

The expected benefits to be derived - as anticipated by the respondents - were exposure to software in order to be more marketable or to enable them to lecture in ERP-related topics, an increase of their knowledge both of ERP-specific, and broader business issues.

### **Limitations of the Research**

The case study focused on a narrow educational area and South African context. A larger sample with a broader grouping of learners doing short courses would have given a deeper understanding of this issue. However, this research does provide a stimulus for further research in the field of cooperative education and this will be given consideration in a follow-up study.

A good response was received (75% return rate) when the instrument was given to learners at the end of the ERP module and when a personal explanation of the purpose of the questionnaire was then given. This was done for the pilot group, where questionnaires were handed out as part of the course evaluation. The low response for the mail-out administration is likely due to one or more of the following: that in many cases learners had completed the course a long time prior to getting the questionnaire - in some cases up to 12 months previously; the lack of a face-to-face explanation as to the purpose of the survey and to work-pressure - as it was the end of the year and examination time for respondents. Other researchers have reported low response rates to mail-outs and likewise have found better return rates for the administration of instruments to a 'captive' audience (see, e.g., Coll, Zegwaard, & Hodges, 2002; Rainsbury, Hodges, Burchell. & Lay, 2002).

### **Recommendations**

Recommendations specific to the case study carried out include adapting the questionnaire to cover all short courses offered at the *Faculty of Business Management* - for a Faculty perspective; handing out the adapted questionnaire as part of the course evaluation of each short course offered in future and repeating the evaluation of the data obtained from the questionnaires at the end of 2001 in order to confirm whether there is merit in further research into the

investigation of a growing trend in cooperative education - 'reverse cooperative education'.

The following more general recommendations apply to the study undertaken: that a follow-up questionnaire for ERP learners be done to get a better idea of the expected benefits learners wish to derive from these specific courses; that questionnaires be handed out at the end of each course with a brief verbal explanation as to the reason for the questionnaire - a request for participation should be made and, ideally, this should form part on the general course evaluation procedure. A similar questionnaire should be developed for other short courses offered at the Faculty of Business Management - and possibly be extended to all short courses offered at TWR and similar institutions. This follow up research will provide a deeper insight into the proposed concept of 'reverse cooperative education'. The latter will result in more data on the part-time short course learners and allow this to be linked to the growing trend in 'reverse' cooperative education being suggested.

It is also recommended that the focus of the study be extended to other higher education institutions offering cooperative education opportunities to enable a snapshot of the South African situation to be made. This would be valuable both to SASCE and WACE.

### **Suggestions for Further Research**

Apart from extending the specific research to include other short courses and courses offered by other institutions, research opportunities on related topics could include:

- 1 Problems/difficulties encountered by the working adult learner.
- 2 'Reverse cooperative education' seen from the employer perspective.
- 3 Higher education institutions - how they cope with the challenges of 'reverse cooperative education'.
- 4 Opportunities/threats to higher education from the SAQA/NQF/unit standards perspective.
- 5 Recognition of Prior Learning (RPL) - the influence this has on cooperative education, specifically 'reverse cooperative education'.

### **Implications for Higher Education**

Evidence in this case study seems to suggest that there is a growing trend of employees - working adults - returning to higher education institutions to enhance their qualifications. The researcher has chosen to describe this as 'reverse cooperative education'. The researcher foresees the following implications of reverse cooperative education for higher education institutions. The institutions should recognise this trend (or the possibility of such a trend) and make a conscious decision to accommodate such learners, positioning themselves in this new education arena as a matter of survival. Curricula will require modularization - this is an outcome of the SAQA/NQF requirements and the only way to customise course offerings on demand - and

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<sup>4</sup> The equivalent of an honours degree as presented by South African technikons

RPL policy and guidelines will have to be in place at the institutions.

Insofar as the South African context is concerned, general lecturing staff need to be more au fait with the requirements of the Higher Education Act, SAQA, NQF, RPL and unit standards and become adept at course design and development to allow the shortest possible turnaround time between requests for courses and actual presentation thereof. The market - companies, corporations, and state departments - will not accept long waiting periods for service. Ideally, a cooperative education unit (or similar) should exist to train, assist, advise and facilitate such course design, although the actual subject related expertise would reside within the traditional academic departments. Of necessity, this unit would make skilled use of the computer and relevant software packages to allow quick turnaround time from course request to the presentation of high quality, up-to-date study material. Learners will seek providers that can service their academic needs professionally.

#### *Implications for SMMEs*

It is common knowledge that South Africa has a growing small, micro- and medium-economic (SMME) sector. Staff employed in this sector are likely to want to upgrade their qualifications flexibly. They have, of necessity, to access such training courses outside the SMMEs as these are likely to be too small to accommodate and maintain in-house training divisions.

#### *Skills Development Levy*

The South African Government's *Skill Development Plan* has been widely publicised - awareness has been created among the population of opportunities for learning that are now open to all. Education providers should see this as an opportunity for not only assisting in the upgrading of the South African populace, but also of generating additional income. It is now well known in the Republic that the subsidy to public higher education institutions is reducing annually. With the advent of studentships and the possibility for employer bodies to recoup some of their contributions to the skills levy, closer ties between the education institution and the industry is a natural and welcome outcome.

#### **Conclusions**

This case study has provided some insights into the practice of cooperative education and also provides guidance for further research. Interest will hopefully be stimulated in readers to engage in related research - possibly even in proving that this 'reverse cooperative education' is simply a form of life-long learning.

From the Technikon Witwatersrand's perspective, deeper insight has been gained into the motivation of the learner following ERP courses. The way has been paved for an adapted and extended questionnaire to be given to learners on completion of their ERP courses. This will lead to ERP courses more responsive to the learners' needs. The research indicates a need for shorter courses - which is in

line with the latest SAQA/NQF regulations. It clearly reinforces the concepts of life-long learning and continuous education.

Implications of the study for the Technikon may be different from those of higher education institutions in South Africa. TWR is one of the few technikons without a 'unit' for cooperative education. It is thus very likely that coping with the demands of the growing trend of 'reverse cooperative education' will present a major challenge. The researcher is of the opinion that urgent attention must be given to all aspects of cooperative education if TWR is to benefit from the opportunities presented by the latest government legislation affecting education.

The Technikon, has no formal cooperative education unit, thus staff are (in the view of the author) unlikely to be fully conversant with the new regulations regarding such things as SAQA, the NQF, unit standards, RPL and the Skills Development Act. Furthermore, there is little opportunity for staff development (certainly at the time the research was undertaken) for curriculum and instruction design or in use of ICT to facilitate new course development. This suggests that the Technikon may begin to lag behind other comparable institutions that are, and can be, responsive to learner and employer needs. It seems timely therefore that TWR benefits from international experience and research, to position itself for the new market and thus take advantage of this potential growth of life-long learning. Such a situation likely holds for other comparable institutions world-wide.

Overall, the study suggests that a case can be made for further research into this trend in cooperative education. A paper presented at the WACE 2001 conference in Thailand by Witteveen (from the Netherlands) entitled *Lecturing in Reverse Cooperative Education* already used the term 'reverse' in conjunction with cooperative education (Witteveen, 2001). Thus it seems educational institutions need to be aware of such trends and make adjustments to teaching strategies to cope with a new cohort of learners with different demographics, needs and most likely different learning styles.

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**Appendix**  
**The Questionnaire Used in the Study**

Please make response with X where required.

NAME: (optional) .....

1. Which ERP modules are you currently busy with / have you completed?

Introduction	MRP	MPS	Finance	EDI
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MPS – Master Production Scheduling

MRP – Manufacturing Requirements Planning

EDI – Electronic Data Interchange

2. Which ERP modules do you still intend to do?

Introduction	MRP	MPS	Finance	EDI
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3. Which other ERP modules (not offered) would you like to do? Please list them.

4. Are you a

Full time student	Part time student
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5. Are you

Not employed	Self-employed	Employed
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6. Who is responsible for your ERP module fees?

Self	Bursary	Employer
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Other, please specify: \_\_\_\_\_

7. What age bracket do you fall into?

18-25	26-35	36-45	45+
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8. What is your highest formal qualification?

Senior Certificate	M+1	M+2	M+3	>M+3
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(Where M+ refers to Senior Certificate (Matric) plus relevant years of study e.g. M+3 = Diploma/Degree).

9. How many years of working experience do you have?

None	Less than 3 years	Less than 10 years	10 or more years
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10. Are you currently working on an ERP system?

N/A	Yes	No
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If N/A, or No proceed to question 13

11. If Yes, how many years?

Less than 1 year	Less than 3 years	3 or more years
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12. If Yes, what module within ERP are you working in?

MRP	MPS	Finance	EDI
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Other, please specify: \_\_\_\_\_

13. Does your company run ERP software?

N/A	Yes	No
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14. If Yes, what software is used?

SAP	BAAN	MK Enterprise	JD Edwards
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Other, please specify: \_\_\_\_\_

15. If No, is your company intending to purchase ERP software?

N/A	Yes	No
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16. Why are you doing the ERP module training? Mark whichever applicable.

General interest	Work-related	Self-improvement
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Other, please specify: \_\_\_\_\_

17. What benefits do you expect to derive from this training? (List 3 – 5)

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Thank you for completing the questionnaire.