

Performance of Mature and Matriculation Entry Students Studying Towards the National Diploma in Building at the University of Johannesburg, South Africa

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ABSTRACT: Developments in the teaching of the National Diploma in Building students should be geared towards meeting the needs of the construction industry in South Africa. These needs are usually in the form of skills and knowledge required to resolve thorny issues encountered in practice. The lack of capacity in the construction industry needs to be addressed from the basis of ensuring that the education system caters for both mature entry and matriculation entry students. The paper looks at a comparison in performance between mature entry and matriculation (just finish High School) entry students focusing on the National Diploma in Building students at the University of Johannesburg. The paper will make a comparison between those students who work first before enrolling for their first year National Diploma in Building and those who are directly from high school. Cooperative education involves training and systematically developing students through the acquisition of the requisite skills, attitudes, values and knowledge required to adequately perform in their chosen careers. The paper describes the problems and experiences that have been encountered by both mature and matriculation entry students in their three years of study which affects their performance. The paper will then look at the value of prior experience in enabling students to finish their National Diploma in Building within a three year period. The paper closes with some recommendations for the future.

Keywords: Education, mature, matriculation, building, skills, construction, diploma.

1. INTRODUCTION

The University of Johannesburg was founded on the proud academic traditions of the former Rand Afrikaans University, Technikon Witwatersrand and two campuses of Vista University. The UJ has approximately 46 000 students, who attends classes on its five campuses, spread over the industrial landscape of Johannesburg. The UJ is focussed on maintaining high academic standards, while boldly embracing change and empowering its students to contribute knowledge and skills to this city and our beautiful country. In South Africa the levels of unemployment and poverty are extremely high and unemployment is one of South Africa's most pressing problems. Acceptable levels of social development, economic growth and a decrease in high crime levels will only be achieved if the 28 per cent unemployment is decreased dramatically. The high unemployment rate can undermine the democracy if it is not reduced. At the same time there is a great need for physical infrastructure in both urban and rural areas. According to the World Bank [1] infrastructure can deliver major benefits in economic growth, poverty alleviation, and environmental sustainability - but only when it provides services that respond to effective demand and does so efficiently. In addition there is a lack of capacity and skills at institutional, community and individual levels. From a theoretical perspective supported by experience elsewhere in Africa and the world at large, there is a huge

role to be played by tertiary institutions in addressing skills development in South Africa. One of the main thrusts of the RDP White Paper remained "to link reconstruction and development: to reduce poverty and create employment through programmes of infrastructure construction and maintenance." The Reconstruction and Development Programme is a programme that seeks to redress the inequities and deprivation caused by the former government's apartheid policies. The programme is founded on six basic principles, linked together which make up the political and economic philosophy that underlies the whole RDP: the use of all available resources in a coherent and purposeful effort that can be sustained into the future; a people driven process; peace and security for all; nation building; reconstruction and development; and democratisation of South Africa. These principles are indicative of a strong emphasis the RDP places on community participation methods.

2. AIM AND OBJECTIVES OF THE STUDY

The study aims to gather and share information on the performance between mature entry and matriculation (just finish High School) entry students focusing on the National Diploma in Building students at the University of Johannesburg. The paper will make a comparison between those students who work first before enrolling

for their first year National Diploma in Building and those who are directly from high school. Cooperative education involves training and systematically developing students through the acquisition of the requisite skills, attitudes, values and knowledge required to adequately perform in their chosen careers. The paper describes the problems and experiences that have been encountered by both mature and matriculation entry students in their three years of study which affects their performance. The paper will then look at the value of prior experience in enabling students to finish their National Diploma in Building within a three year period. The paper closes with some recommendations for the future.

3. METHODOLOGY

A questionnaire was designed and distributed to 30 students who are currently on the 4th year of study who had worked before embarking on their first year of study. All the 30 students who were given the questionnaire responded to the survey.

4. SKILL DEVELOPMENT IN SOUTH AFRICA

The important note was to recognise the improvement of the work skills of all South Africans, which is critical to grow the national economy. The Skills Development Act (SDA) was promulgated to create the structures and framework for the national development strategy. In terms of the SDA employers are obliged to provide formal structured education to their workers, hence in the problem statement. The act encourages partnership in this effect between government, employers, workers, education and training providers, and beneficiary communities. According to SDA, the needs of employers, the economy and the communities must dictate which skills development should be developed. The SDA covers structured, targeted and generic training implying that all training interventions should be planned and managed as projects that is the reason why Group Five has “people at the gate” which is Corporate Social Investment Project. In SDA, employers together with their workers formulate workplace skills plans (WSP) to enable them to realize their employment training targets. All designated employers pay a monthly skills development levy of 1% of their budgeted payrolls to the National Skills Fund (NSF), via South African Revenue services (SARS). Of this amount, the employer can claim back 70% in the form of discretionary grant, provided that they submit WSP and Implementation Report (IR) annually and conduct special training projects.

These levies finance the implementation of the National Skills Development Strategy (NSDS). Construction Education and Training Authorities (CETA) receives 10% of the skills levies paid by construction employers for administration costs, NSF receives 20%, and 70% is available to be claimed back by these contributing employers. However, international trends shows that

companies need to spend between 4% and 7% in order to be successful in addressing the current shortages and gaps [1]. Furthermore, there appears to be over-reliance of a number of levels in the micro and provincial economy on the Sector Education Training Authority’s as being responsible bodies for coordinating the identification of scarce skills in South Africa.

5. SKILL DEVELOPMENT IN THE CONSTRUCTION INDUSTRY

Historically, the construction industry has largely relied on a core of highly skilled staff to supervise a largely semi-skilled and unskilled workforce. The decline in demand for construction products over the past decades, and associated uncertainty, has seen a reduction in skills training since the 1980s, and the closing down of industry training institutions in the 1990s. It has been reported that only about 70 percent of the available training capacity is currently being utilised [2]. Skills enhancement in the construction industry faces a very particular challenge since the construction sector employs the fourth highest number of persons having no formal education – after agriculture, households and mining. Industry has expressed a view that skills supplied to the market through the Further Education and Training (FET) system were in many cases not appropriate to their needs, resulting in a skills gap. While industry-based training is seen as better aligned with company-specific requirements, South African Qualification Authority (SAQA) does not accredit some trainers, and some do not issue certificates for training and employment. This tendency limits mobility and career path prospects [2].

6. EDUCATION OF “THINKERS”: THEORY

Preparing young people for the world of work is a current focus for discussion and debate in South Africa and in many other countries. Current questions on the subject ask whether or not young people should be prepared for the working environment and if so how and why? The education of young people is a central political and economic issue in South Africa. In recent years there has been much debate on the form and content education policy should have. One aspect of the debate has been on whether the education system should specifically prepare young people for the world of work. In order to achieve this there must be a close scrutiny of the curricula and there must be a shift in the balance of subjects with the emphasis being towards the sciences and technologies with less emphasis on art-related subjects. It is believed that in a technologically orientated society such as South Africa, the educational bias should reflect this. Whilst this philosophy might be regarded as sensible, there are those who believe that young people should have a more pluralist education. Such an approach exposes young people to a wider range of options, thus enabling knowledge and expertise to be nurtured equally.

The present word “university” comes from the Latin “universitas litterarum” which means “the whole of sciences” (taught at the university). The important aspect of generality of the university education or the need to educate the students in a broad sense (i.e. not only technical), simultaneously underlining the must for some sort of universal knowledge, based on “thinking”. Creativity depends on the information base and the capacity of unrestricted thinking. The question to ask ourselves does the present method of teaching encourage critical thinking? Teaching theory is the best and most efficient way to teach. There is nothing more practical than a good theory. “A good education system should be based on theory and practice, whereby practice may be viewed as a long-time experiment on full-size scale. The opinion prevails that “theory is one eye, practice the other. Only with both of them together can one truly have three-dimensional construction vision.

There are complaints that students need better understanding and appreciation of how theory applies to situations encountered in practice, and graduates are not prepared for the jobs they face in the present world, being weak in concept and problem-solving tools. Employers must recognise the graduate an entry level without experience and without definable capabilities latter will emerge during their experiential learning, since “real-world” problems are often complex and “unstructured” and do not lend themselves well to classroom analysis and synthesis of solutions. Some people believe that “work experience has a more role to play than ever before and some believe theory is more important. What is the solution? I believe it should be a combination of both?

10. EXAMPLES OF WORK-BASED TASKS

There are numerous ways that universities have endeavoured to prepare their students for the world of work. Many of the suggestions are not new or will they be suited to every course or group of students. Examples will need to be carefully evaluated, adjusted, piloted and honed to reflect the particular ethos of a course, the staff, employers and student needs and abilities. Only when such a process is undertaken can a judgement be made on their validity[6].

7. INDUSTRIAL TRAINING PRACTICE

In this model, students are employed for about one year. Training can be undertaken in a single period or be divided into blocks of 3 to 6 months duration. Being exposed to real industrial practices, students see and feel the stresses and pressures of that particular industry. Further, in many instances, students work long hours and are given considerable responsibilities. Whether or not

companies should make heavy demands on inexperienced students is a separate debate, but as a preparation for a future career many industries would argue that such experience has unsurpassed benefits. Some companies with international links can also provide excellent training. Such exposes students to a wealth of experiences, both technical and social, and has benefits in developing communication skills in different societies and cultures.

8. LECTURERS INTO INDUSTRY

Lecturers must be seconded to industry. Whether for a few days or several weeks, the net effect is that lecturers refamiliarise themselves with industry practices and procedures and gain knowledge. This educational/ industrial experience then comes full circle in that lecturers, having updated their skills, are thus able to impart this to students. The three-way arrangement between industrialists, lecturers and students where there is collaborative integration has mutual advantages. Industrialists must be given chance to teach certain modules. Industry/Education partnership must be encouraged. Visit to industries must be encouraged.

9. NON-FORMAL EDUCATION

Non-formal education became part of the international discourse on education policy in the late 1960s and early 1970s [3] It can be seen as related to the concepts of recurrent and lifelong learning. Tight [4] suggests that whereas the latter concepts have to do with the extension of education and learning throughout life, non-formal education is about 'acknowledging the importance of education, learning and training which takes place outside recognized educational institutions'. Fordham [5] suggests that in the 1970s, four characteristics came be associated with non-formal education:

- Relevance to the needs of disadvantaged groups.
- Concern with specific categories of person.
- A focus on clearly defined purposes.
- Flexibility in organization and methods.

Figure 1 Models of normal and non – formal education

	formal	non-formal
purposes	Long-term & general Credential-based	Short-term & specific Non-credential-based
timing	long cycle / preparatory / full-time	short cycle / recurrent / part-time
content	standardized / input centred academic entry requirements determine clientele	individualized / output centred practical clientele determine entry requirements

delivery system	Institution-based, isolated from environment. rigidly structured, teacher-centred and resource intensive	Environment-based, community related. flexible, learner-centred and resource saving
control	external / hierarchical	self-governing / democratic

(Adapted by Fordham 1993 from Simkins 1977: 12-15)

The purpose of RPL is to relate informal training, life experiences and work experience to a set of clearly defined vocational (workplace) outcomes to open up the candidate's access to wider career and vocational training options, especially to those candidates who have previously been denied access to formal training opportunities.

Figure 2 The Benefits and challenges of Recognition of Prior Learning

Role-player:	Benefits of RPL:	Challenges of RPL
EMPLOYER	<ul style="list-style-type: none"> Existing worker competence can be easily measured against required standards (employable skill standards) Cost-effective identification of further training needs Better qualified workforce increases competitiveness Aid to effective recruitment 	<ul style="list-style-type: none"> The workshops as they are conducted by external assessors are going to be costly for the company. The company will lose a number of production days as the employees will be attending the workshops on

		different days.
LEARNER	<ul style="list-style-type: none"> Improves self-esteem and self worth Improves visibility and accessibility of qualifications Provides for recognition of existing skills and knowledge Identifies individual paths to relevant qualifications Improves work motivation and performance Candidate-centred-focuses on individual skills and training needs. 	<ul style="list-style-type: none"> Most of the employees from the previously disadvantaged may have problem with the language as only English and Afrikaans will be used. This may lead to other people not benefiting from the workshops. RPL is self-paced and self-managed so many employees may end up not completing if they are not self-disciplined.

11. RESULTS AND DISCUSSION

There were thirty questionnaires that were sent to thirty students to complete and all the thirty questionnaires were completed and returned. There were twenty seven male and three female students. The age of the students ranges between 22 years and 44 years. Out of the 30 students only 4 were from outside South Africa. 40% of the students came from the Gauteng Province; 20% Limpopo Province; 15% Eastern Cape Province; 7% from Lesotho; 7% from Botswana; and 11% from KwaZulu Natal. The average years of experience in the construction industry before doing the first year in Building is 6 years. More than 80% of the students had worked for the private sector and 20% for the public sector. 50% of the respondents alluded that they work first before going to the University to further their studies after completing High School because they wanted to learn more about the construction industry before choosing the right course; 20% of respondents had no money to further their studies and they had to work first to raise money to pay for the studies. 20% of the respondents were offered a job opportunity immediately after High School completion. 10% of the respondents were encouraged by their parents to enter the construction industry as they were employed by the industry themselves.

90% of the students were employed as Trainee Site Agents and 10% as Trainee Technical Officers. 80% of the students alluded that they were adequately prepared and 20% were very well prepared for their first year. They were exposed to a variety of construction projects; project management skills, site management skills, human resources management; construction skills; communication skills; report writing; team work. The students were also able to make a right choice between construction management and quantity surveying course. All the 30 students alluded that it was easy to complete their studies on record time. The 30 students had not repeated any subjects in their Diploma in Building Programme. 80% of the students believe that all students must work before doing their first year. 20% of the students believe that students should be exposed to the construction industry in their first of study.

80% of the students received good support from their supervisors and 20% of the students received poor support. 80% of the students attributed their support to good communication channels between themselves and their supervisors. The 20% of the students were neglected most of the times and left alone. The supervisors were too busy to give guidance to the students. As a result team members were the one who assisted them in addressing the challenges they faced while undertaking their work. All the students were very positive about the future of the construction industry and the construction profession in South Africa. They believed that more people must be trained in order to improve the construction industry. 90% of the students alluded that their industry exposure made them to understand the construction industry better and

they were able to choose construction as their career.

The students who come direct from high school encounter the following that makes them to repeat some subjects:

- Lack of communication skills
- Lack of computer skills
- Unable to work in a team
- No practical knowledge of the construction industry
- Lack of skills to write and present report properly
- Lack of problem solving skills
- Unable to relate theory to practice

From the research it can be concluded that prior work experience among Diploma in Building students reduces the failure rate. This also improves the through put rate.

12. CONCLUSION

The paper looked at a comparison in performance between mature entry and matriculation (just finish High School) entry students focusing on the National Diploma in Building students at the University of Johannesburg. The paper made a comparison between those students who work first before enrolling for their first year National Diploma in Building and those who are directly from high school. The research revealed that those who worked first before doing their first year of study all of them completed the Diploma in Building in record time (three years). The high failure rate is caused by lack of knowledge about the construction industry. The foregoing examples provide a range of options available to assist in providing world of work experiences for students in the different disciplines. Academic institutions must be relevant as the industry requirements changes industries must also play a major role in affording graduates an opportunity to learn as you cannot buy experience.

13. RECOMMENDATIONS

- Students who are admitted straight from Matric (High School) must be encouraged to work during university vacation in their first year.
- Potential students who undertake work based learning first must be encouraged to keep a daily log book which will contain details of the work they have performed during their stay in that company. A major benefit of this approach will be the positive development of the potential student's attitudes towards responsibility and accountability in relation to the project in which he or she is engaged.
- Encouraged more female students to engage in the construction industry

- Each potential student must be assigned a supervisor from the first day they are employed. The supervisor must check and certify the correctness of the record for each task performed.
- The supervisor must have appropriate qualifications and experience and should ideally hold the position of a registered quantity surveyor or construction manager or construction project manager, or a site agent or a construction surveyor. Any other person provided that he or she holds a responsible position in the company being represented, and is actively pursuing continuing professional development in a built environment field of study.
- The learning outcomes must be clearly defined from the beginning when the person is offered an employment opportunity.

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