AN INVESTIGATION INTO INFORMAL CRAFT SKILLING IN THE KENYAN AND SOUTH AFRICAN CONSTRUCTION SECTORS

Wachira N[1], Root D[1], Bowen PA[1] Olima W[2]

[1] Department of Construction Economics and Management, University of Cape Town, wchisa001@uct.ac.za, Tel No. 021-650 3443
[2] Department of Real Estate and Construction Management, University of Nairobi

ABSTRACT

Purpose of this paper - In the Kenyan and South African construction sectors, much attention has been given to the shortages and inadequacies of skilled personnel. Among construction craftsmen, shortages and inadequacies of skills largely reflects the limited number of workers possessing formally certified skills because they are informally trained and are consequently deemed to be inadequately skilled. This paper investigates the prevalence of informal skilling in these two countries.

Methodology/Scope - This paper reports on the preliminary findings of ongoing research aimed at *inter alia,* exploring the methods of skill acquisition among construction craftsmen in both Kenya and South Africa. The focus is on the process of informal skilling which is common among craftsmen engaged in the formal and informal construction sectors.

Data were collected via in-person surveys using semi-structured questionnaires. The questionnaires were administered to craftsmen on the construction sites.

Findings - Preliminary findings indicate that informal skilling is the most common method of training craftsmen both in Kenya and South Africa. It is therefore pertinent for any training interventions in the sectors to take advantage of the strengths and address the weaknesses of this mode of training in a bid to tackle the prevailing shortages and inadequacies of skilled personnel.

Practical implications - The results of the study suggest that both the Directorate of Industrial Training (DIT) in Kenya and the Construction Education and Training Authority (CETA) in South Africa, need to take cognisance of the informal skilling method in the formulation of viable training programs for construction craftsmen in the two countries.

Value - The findings of the study, though not intended to provide a solution, will be useful in developing viable policy interventions to enhance the training of construction craftsmen and counter the crippling skill shortages.

Keywords: Informal skilling, Craftsmen, Kenya, South Africa.

1 INTRODUCTION

In the Kenyan and South African construction sectors, much attention has been given to the shortages and inadequacies of skilled personnel. Skilled personnel include construction craftsmen like masons, carpenters, plumbers, electricians, painters and other such tradesmen. Among construction craftsmen, shortages and inadequacies of skills largely reflect the limited number of workers possessing formally certified skills. Anecdotal evidence gathered by the authors indicates

that the limited formal certification of craftsmen in both countries may be due to the prevalence of informal training in the construction sector. This paper reports on the preliminary findings of an ongoing research that aims at investigating the modes of craftsmen skilling.

2 INFORMAL SKILLING

Informal skilling, which includes both informal skills training and informal apprenticeship, is an *ad hoc* and unsystematic method of learning skills on-the-job which is received within the context of day to day production activities (Middleton *et al.*, 1991). It mainly involves learning via observing and doing and is largely confined to initial employment training with limited continuation of training and skills upgrading. Informal skilling is geared towards the transmission of existing practices without or with minimal external input (e.g. from colleges). The implication of this is that the master's ability to train is limited to his current skill and knowledge and this often results in low productivity (Ziderman, 2003).

Informal skilling is common in the construction sectors of many developing countries e.g. Philippines, Indonesia, Egypt, India, Mexico and Brazil (International Labour Organisation, 2001; Alwi *et al.*, 2006). Haupt *et al.* (2005) reported that among the contractor employees in the Western Cape province of South Africa, 31% of the craftsmen, 54% of semi-skilled operatives, and 68% of the general operatives are trained informally. In Iran, Sri Lanka and China the number of craftsmen trained informally are 95%, 80% and 90% respectively (Zakeri *et al.*, 1996; Jayawardane and Gunawardena, 1998; Sha and Jiang, 2003). Similarly, informal skilling has been observed in developed nations for example, in the USA Rowings *et al.* (1996) report that it accounts for 76% of craft training.

In many of the developing countries of Sub-Saharan Africa, including Kenya, employment in the formal sector has been shrinking as a result of a combination of poor economic performance, structural adjustment policies (SAPs), and a growing number of job seekers entering the job market resulting from high population growth rates (Ziderman, 2003). Consequently, job seekers are entering the informal sector in growing numbers and creating a significant need for skills development. Accordingly, informal skilling is the most prevalent mode of training in the informal sector (Johanson and Adams, 2004). Moreover, in Kenya and South Africa, informal skill training is further encouraged by the low levels of formal craftsmen training (Construction Industry Development Board (CIDB), 2004) as exemplified in South Africa by the reduction of trainees from 5697 in 1970 to 769 in 1990 (Cattell *et al.*, 1996) and the recruitment of only three construction apprentices in 2002 in Kenya (Directorate of Industrial Training, 2006).

Informal skills training and apprenticeship has thus become common, especially among young people who, for various reasons, are unable to progress up the academic ladder; or gain admission to vocational training institutions; or those of all ages who cannot find employment in the formal sector (Kent and Mushi, 1995; Johanson and Adams, 2004). In Kenya, the informal sector is estimated to be training more school leavers than all formal vocational training institutions combined, making it a significant contributor to skills development (Barasa and Kaabwe, 2001). Additionally, informal skills training is attractive in developing nations because it is self-financing in that it takes place without any funding from budget-constrained governments or formal levy funding by relying mainly on user fees or low wages for the apprentices during training (Ziderman, 2003). Moreover, informal skills training and apprenticeship has expanded because many of the existing formal training institutions are ill-prepared to equip trainees with the skills needed to operate in an informal sector which is fast becoming the dominant employer (Kent and Mushi, 1995; Ziderman, 2003; Johanson and Adams, 2004).

Informal skills development is generally unregulated and is characterised by the following attributes (Kent and Mushi, 1995; McGrath *et al.*, 1995):

- Entry into the training regime has little or no emphasis on academic qualifications; hence it is open to all including those who are illiterate.
- No standard cost of training; i.e. there are no set fees hence little commonality in the charges among providers even for similar skill areas or trades. The cost of training is usually in the form of payment of a lump sum (which maybe converted into monthly instalments) to the providers or via the apprentice's acceptance of low wages during the training.
- *Ad hoc* curriculum; i.e. no prescription of syllabus, subject content or method of assessment, and theoretical knowledge is largely ignored. Training is production-oriented, revolving chiefly around workplace instruction only.
- Training providers have no formal qualifications either as tradesmen or as trainers. This is mainly because many of the masters *cum* trainers acquired their skills informally too.
- Pedagogy is limited to learning by doing (trial and error) and is based on tacit knowledge with little use of diagrams, books or models. What the trainee learns is dependent on the work in progress and the relationship is founded on 'master and man' rather than 'teacher and pupil'. Additionally, very little emphasis is placed on the creation of a healthy and safe work environment or on the safe use and correct selection of tools and materials.
- The progress and capability of the trainee/apprentice is dependent on the level of instruction necessary to enable him or her to work unsupervised and no value is given to independent assessment like trade tests.
- Training is suited for self-employment, accentuating getting the job done rather than procedural correctness. By the end of the training the trainee has some work experience and has established links with potential informal employers.

Informal skilling has weaknesses that stem mainly from its characteristics. These challenges have been identified through a number of studies (Franklin, 1973; Middleton *et al.*, 1991; Kent and Mushi, 1995; McGrath *et al.*, 1995; Barasa and Kaabwe, 2001; Ziderman, 2003) and include:

- The narrow and static range of skills offered. The informal training system has difficulty coping with technological changes, and the need for skills enhancement to widen geographical markets. This limits the marketability of the graduates as existing techniques become obsolete; serves to perpetuate traditional techniques that may not be optimal; and demands high levels of supervision (see Cattell, 1997).
- Restricted opportunity for learning to work effectively. Due to the use of learning-by-doing, coupled with instructing by providers lacking both teaching and certified trade skills, learning takes place by accident rather than by intent. This is most prevalent where the masters/trainers have limited skill and often leads to a diversity of qualifications and competencies even within the same occupation; i.e. limited standardisation of both the method of skilling and the graduate.
- The minimal knowledge of materials (behaviour and characteristics) and processes may affect the quality, reliability and safety of use of the final product.
- The minimal theoretical knowledge and *ad hoc* curriculum erodes the necessary foundation for new skills thus making it difficult to learn. This is especially critical in the face of new materials entering the market.
- Lack of standardised training and independent testing makes it difficult to control the quality of the training i.e. there is a lack of appropriate scale of equivalence by which the knowledge and skills acquired can be externally vetted hence the competence of the graduates is difficult to vet. This, in turn, means that the consumer of the services has no guarantee of what he is purchasing.

Due to the weaknesses outlined above, informally-trained craftsmen are usually deemed to be inadequately skilled. Moreover, no single blueprint or best practice exists for training in the informal sector with each intervention requiring to be customised to the needs of the respective sector and the existing local realities (McGrath *et al.*, 1995). Furthermore, many planners and policy makers in developing countries tend to ignore informal skilling, typically assuming that institutionalised training is more cost-effective although there is no supporting evidence of this supposition (Dougherty and Tan, 1999). Many training interventions among construction sector craftsmen are accordingly directed towards the enhancement of formal training, hence excluding those who are informally trained. Dougherty and Tan (1999) assert that, due to its prevalence, informal skilling should be given high priority in the training field of developing countries including an assessment of its scope and an evaluation of the degree to which it complements other forms of skill development. In response to this call, the paper looks at the occurrence of informal skilling among craftsmen in the Kenyan and South African construction sectors.

3 METHODOLOGY

The unit of analysis in this study was the craftsman. Data for this study were collected using in-person surveys with construction craftsmen at the construction sites. On-site in-person surveys were used because of the low levels of education and the lack of a proper sampling frame (no craftsmen register or list of addresses and contacts exists) precluded other forms of data collection. The questionnaires used were semi-structured and designed to obtain information on the craftsmen's trade, their level of education, mode of skilling, and the prevalence of formal trade certification. In this study, 43 craftsmen from Nairobi province in Kenya and 20 from the Western Cape province in South Africa were surveyed.

4 FINDINGS

The following are the findings of the study. To contextualise the participants' responses, respondents were asked to indicate their respective trades.

Table 1: Respondents' trades

Trade	Kenya		South Africa	
	No.	%	No.	%
Mason/Bricklayer	12	28%	4	20%
Carpenter	8	19%	5	25%
Electrician	5	12%	2	10%
Plumber	4	9%	3	15%
Painter Decorator	4	9%	2	10%
Other	10	23%	4	20%
Total	43	100%	20	100%

Table 1 indicates the trades of the respondents in both countries. In a bid to make the data comparable the respondents were grouped into the five formally recognised trades that are common in both countries. Masons and bricklayers are categorised together because in Kenya the masonry trade executes tasks that include bricklaying. The grouping 'other' includes trades that are unrecognised or are dissimilar in both countries e.g. steel fixing, plastering, roofing. The trades followed by the craftsmen generally follow those that are formally recognised which in turn are dictated by the prevailing technology.

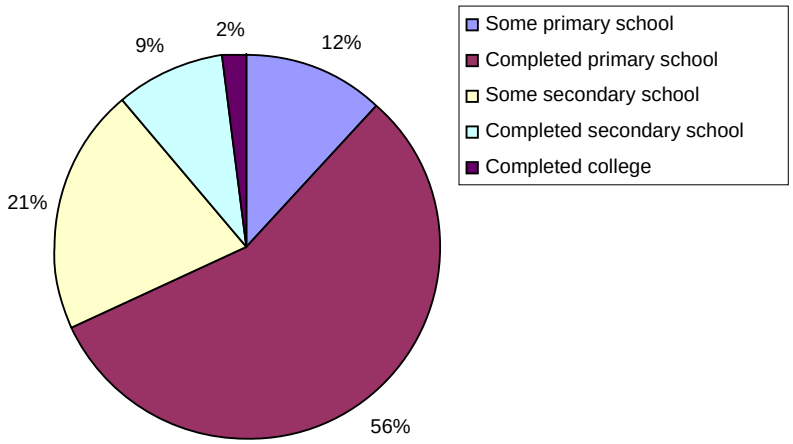

Figure 1: Respondents level of education in Kenya

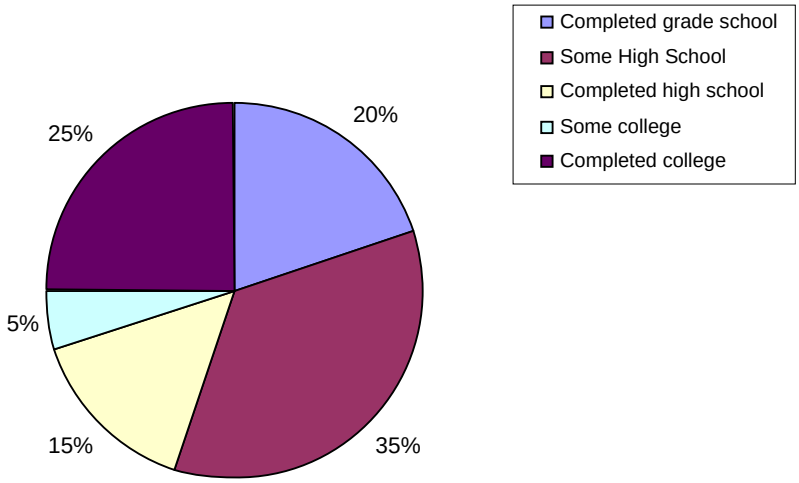

Figure 2: Respondents level of education in South Africa

Figures 1 and 2 indicate the highest level of education among the respondents. The level of education impacts on the eligibility of the respondents' to qualify for formal craft training. In Kenya formal craft training requires a minimum of a secondary school certificate thus excluding about 76% of the respondents. In South Africa literacy is a requirement, (at least completion of high school) thus excluding 55% of the respondents. This finding is similar to the results of another more extensive study, that reported that in South Africa 81% of the craftsmen had only a few years grade school education and were barely literate (English, 2002). Where the aspirant entrants into construction craftsmanship are disqualified from formal skills training due to their level of education, they have no option but to seek informal training which does not have the same education requirements. This has contributed to the prevalence of informal skilling. Moreover, the disparities in the level of education among craftsmen and the requirements for formal craftsmen training in both countries is an indication that formal training may be out of step with the realities of

the marketplace as it excludes more than half of the aspirants. This highlights the possible need to re-evaluate the training criteria either to make it more inclusive or alternatively create conditions in the sector that will attract entrants with higher levels of education.

Table 2: Respondents method of trade training

How did you train?	Kenya		South Africa	
	No.	%	No.	%
Accredited training institution/contractor	12	28%	5	25%
Informal apprenticeship/observation on the job	31	72%	15	75%
Total	43	100%	20	100%

Table 2 above indicates that more than 70% of the respondents in both countries trained informally on the site via observation or via informal apprenticeships with masters. This clearly suggests that (despite the limited sample of observations) informal skilling is the most prevalent method of skilling in both countries. Anecdotal evidence suggests that informal training is typically propagated by unschooled masters' hence it centres chiefly on learning on-the-job. The calibre of craftsmanship here is vetted mainly by the productivity of the craftsman as opposed to the quality of the final product. As implied by the attributes of informal skills development and owing to the unschooled status of the masters, informal craftsmen training has minimal theoretical input making it appealing to trainees with low levels of education. This explains the prevalence of this method of training even though it is not formally recognised by either DIT or CETA as an acceptable form of craftsmen training. Comparatively, in Iran, 95% of the construction craftsmen reported that they had acquired their skill informally (via informal apprenticeship and on-site training only) (Zakeri *et al.*, 1996). The high percentage of craftsmen trained via informal apprenticeship clearly establishes the significance of training in the informal sector in meeting the human resource needs of the construction sector.

Table 3: Prevalence of formal trade certification

Do you have a formal trade certificate?	Kenya		South Africa	
	No.	%	No.	%
Yes	10	23%	8	40%
No	33	77%	12	60%
Total	43	100%	20	100%

In tandem with their lack of formal training, 77% and 60% of the responding craftsmen in Kenya and South Africa, respectively, did not hold any formal trade test certificate (Table 3). Many craftsmen who train informally do not attempt formal trade tests because of their training, which has little theoretical input. Their level of education makes it difficult for them to undertake the trade test, particularly the theoretical component. In addition, the limited level of formal trade certification is a proxy for the diminished value of the trade certificate in both the Kenyan and South African construction sectors. This is mainly a consequence of the existence of an informal construction market that typically does not value formal training and a formal sector that rarely requires proof of formal skill certification (Cattell, 1997). There is therefore a need to sensitise the construction sector employers on the advantages of trade certification as a way of standardising training in order to give employers quality assurance; to assure customers that skills are available to deliver the service on offer (Construction Industry Board (CIB), 1998); to facilitate employers in vetting suitable employees; to provide workers with portable credentials; and to give groups bargaining power (Grugulis, 2003). Moreover, CIB (1998) asserts that a certification scheme should aim at helping the sector secure an increasingly skilled workforce, recognise skills,

competences and qualifications, and finally improve the attractiveness of the sector to higher calibre entrants by, for example, improving health and safety awareness. This can, however, only take place via the integration of both formal and informal training so that all the craftsmen (irrespective of their training background) are accredited. The 23% and 40% who have trade test certificates are chiefly those trained in accredited colleges or those trained by formal accredited contractor.

5 CONCLUSIONS

The results of this preliminary study indicate that informal skilling plays a significant role in the training of craftsmen in both Kenya and South Africa. The popularity of informal skilling is fuelled mainly by the low levels of education among construction craftsmen, which excludes them from both formal skill training and trade testing.

This preliminary study will be followed by a more comprehensive study which will involve a larger sample of 500 craftsmen. The larger sample will allow for the role of informal skilling in the construction sector to be explored further. Additionally, the research aims at identifying the type of skills craftsmen are acquiring as a reflection of the skills that the market requires and to investigate the interventions that stakeholders can use to encourage more appropriate training in the construction sector.

6 PRACTICAL IMPLICATIONS

The findings of the study suggests that the bodies responsible for the training of construction craftsmen i.e. the Directorate of Industrial Training (DIT) in Kenya and the Construction Education and Training Authority (CETA) in South Africa, need to take cognisance of the informal skilling method in the formulation of viable training programs for construction craftsmen. Interventions should include building linkages between the formal training institutions and informal trainers in an effort to address the weakness of informal skilling e.g. by increasing the level of theoretical instruction and introduction of appropriate technology. Such interventions should aim at the integration of both formal and informal craftsmen training as a means of addressing the shortages and inadequacies in craftsmen skills and to increase the levels of skill certification for the benefit of the sector. Accordingly, the findings of the study, though not intended to provide a solution, will be useful in developing viable policy interventions to enhance the training of construction craftsmen.

REFERENCES

Alwi, S., Kajewski, S. and Hampson, K. (2006) Investigation into the relationship between just-in-time (JIT) training and productivity in building construction in Indonesia. *In, 1st International construction speciality conference,* May 23-26, 2006, Calgary, Alberta, Canada, CT-108--101-107.

Barasa, F. S. and Kaabwe, E. S. M. (2001) Fallacies in policy and strategies of skills training for the informal sector: evidence fro the Jua Kali sector in Kenya. *Journal of Education and Work,* **14,**(3), 329-353.

Cattell, K. S. (1997) *The development of black South African small-scale construction enterprises: Emerging Contractors and the Demand for Formal Training,* Department of Construction Economics & Management, University of Cape Town.

Cattell, K. S., Hindle, R. D. and Rogalli, H. (1996) South Africa's emerging building firms: A vocational training challenge. *In, CIB W89 Beijing international conference on Construction modernisation and education,* 21-24 October, Beijing.

Construction Industry Board (CIB) (1998) *Main Report: Strategic review of construction skills training. Thomas Telford Publishing*, Prepared by IPRA Ltd. And The University of Westminster.

Construction Industry Development Board (CIDB) *South Africa construction industry status report: Synthesis review on the South African construction industry and its development: Discussion document, .* [Available online from Retrieved on 25/8/2006 from website http://www.cidb.org.za.]

Directorate of Industrial Training *Recruitment of craft apprentices (1998 – February 2003)*. [Available online from http://www.ditkenya.org/statistics/recruitmentcraftstatistics.doc.]

Dougherty, C. and Tan, J.-P. (1999) Financing training: issues and options. *Journal of European Industrial Training,* **23,**(9), 416-436.

English, J. (2002) Opportunities for training and self development that the new millennium offers the informal construction worker in South Africa: A case study of 200 workers. *In*, *Proceedings of CIB W107 1st International Conference: Creating a sustainable construction industry in developing countries*, 11-13th Nov. , Stellenbosch, South Africa, 583-592.

Franklin, W. S. (1973) A comparison of formally and informally trained journeymen in construction. *Industrial and labor relations review*, **26,**(4), 1086-1094.

Grugulis, I. (2003) The contribution of National Vocational Qualifications to the growth of skills in the UK. *British Journal of Industrial Relations,* **41,**(3), 457-475.

Haupt, T., Miller, S. and Chileshe, N. (2005) *Report on the profile of construction skills in the Western Cape. Working Paper 0105*,Cape Town: Southern Africa Built Environment Research Center.

International Labour Organisation (2001) *The Construction industry in the twenty-first century: Its image, employment prospects and skill requirements. Sectoral Activities Programme, ILO*,Geneva: ILO.

Jayawardane, A. K. W. and Gunawardena, N. D. (1998) Construction workers in developing countries: a case study of Sri Lanka. *Construction Management and Economics,* **16,**(5), 521-530.

Johanson, R. K. and Adams, A. V. (2004) *Skills development in Sub-Saharan Africa. World Bank Regional and Sectoral studies*, Washington: The World Bank.

Kent, D. W. and Mushi, P. S. D. (1995) *The education and training of artisans for the informal sector in Tanzania: A study funded by the Overseas Development Administration Education Division.* Vol. Serial no. 18, *Education Research* Overseas Development Administration

McGrath, S., King, K., with Leach, F., Carr-Hill, R., in association with, Boeh-Ocansey, O., D'Souza, K., G., M. and Oketch, H., , (1995) *Education and training for the informal sector*, Education Research, Overseas Development Administration, Volume 1, Serial No. 11.

Middleton, J., Ziderman, A. and Adams, A. V. (1991) *Vocational and Technical Education and Training. A World Bank Policy Paper*,Washington DC: The World Bank.

Rowings, J. E., Federle, M. O. and Birkland, S. A. (1996) Characteristics of the craft workforce. *Journal of Construction Engineering and Management,* **122,**(1), 83-90.

Sha, K. and Jiang, Z. (2003) Improving rural labourers' status in China's construction industry. *Building research and information,* **31,**(6), 464-473.

Zakeri, M., Olomolaiye, P. O., Holt, G. D. and Harris, F. C. (1996) A survey of constraints on Iranian construction operatives' productivity. *Construction Management and Economics*, **14,**(5), 417-426.

Ziderman, A. (2003) *Financing Vocational Training in Sub-Saharan Africa. Africa Region Human Development Series*,Washington D.C.: The World Bank.