



**FEDERAL UNIVERSITY OF TECHNOLOGY
MINNA**

**POST-OCCUPANCY EVALUATION:
A NECESSARY TOOL FOR ARCHITECTS,
FACILITIES MANAGERS AND OTHER
PROFESSIONALS IN THE BUILDING INDUSTRY**

By

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Professor of Architecture

INAUGURAL LECTURE SERIES 68

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1.0 Introduction

Buildings are an important necessity to provide for human needs for shelter. They also provide support for operations and equipment. Therefore by understanding how existing buildings affect occupants, designers can minimise problems and capitalise on successful design features. Often, once a building is physically completed, the designers and builders treat the building as a closed issue. There is a need to look back at the building to evaluate its performance, learn and apply the knowledge for improvement in the design, construction and maintenance of future buildings for a better built environment (Zubairu, 2012).

It has increasingly been demonstrated that this look back or post-occupancy evaluation (POE) is absolutely essential so that future buildings can perform better from lessons learnt from building performance (John, 2008). Thus POE is intended to compare systematically and vigorously the actual performance of completed and occupied buildings with explicitly stated performance objectives. Kampschroer and Heerwagen (2004) noted that the difference between the actual performance and the intended performance constitutes the evaluation.

Evaluation and feedback are known to be cornerstones for the continuous improvement in building procurement. Thus, for an effective feedback system there is a need for post-occupancy

evaluation. Post-Occupancy Evaluation (POE) involves systematic evaluation of opinions about buildings in use, through careful analysis of buildings from all relevant viewpoints. It is equally a tool to account for building quality, most especially when planning refurbishment of existing buildings. It helps clarify perceived strengths and weakness in order to focus resources where they are needed (Zubairu and Olagunju, 2012; Zubairu and Ayuba, 2012).

From past researches carried out ((Brill *et al.*, 1984; Ellis, 1988; Wolfgang *et al.*, 1988; Van Wagenberg, 1989; Adedayo and Zubairu, 2013; Anunobi and Zubairu, 2016), the participation by the users has been revealed to generate greater commitment to solutions and more willingness of users/owners to accept shortcomings. Consequently, POE of existing buildings involves various relevant groups, such as building research experts and users. There is growing global desire to assess and investigate performance of buildings after being occupied due to its enormous influence on the occupants' health and safety and stakeholders' needs.

Preiser and Schramm (2002) explained that as the term evaluation contains the word “value” POE explicitly requests users to assess the performance of the building within certain contextual objectives. Building users here refer to all people with an interest in the building under consideration. They include but are not limited to staff, managers, customers or clients, visitors, owners, design and maintenance teams and other interest groups such as the physically and or mentally challenged.

2.0 Post-Occupancy Evaluation

2.1 Definition of Post-Occupancy Evaluation

Different terms have been used for Post-Occupancy Evaluation

(POE), namely, Facility Performance Evaluation (FPE), Environmental Design Evaluation (EDE), Environmental Audits (EA), Building-in-use Assessments, Building Evaluation, Facility Assessment and Building Performance Evaluations (BPE). In a historical survey, Cutler and Kane (2009) argued that POEs started in the 1960s and 1970s, although these involved individual case studies such as public and student housing.

The term Post-Occupancy Evaluation (POE) was coined over 60 years ago. Though there are several definitions of POE, it may be defined as any and all activities that originate out of an interest in learning how a building performs once it is built and occupied, including if and how well it has met expectations and how satisfied building users are with the environment that has been created. Precisely, Post-Occupancy Evaluation involves systematic evaluation of opinions about buildings in use, from the perspective of the people who use them. Preiser *et al.* (1988) further defined POE as a process of evaluating buildings in a systematic and rigorous manner after they have been built and occupied for some time.

Many actors participate in the use of buildings, they include investors, owners, operators, maintenance staff, and perhaps most important of all, the end users. POE differs significantly from the conventional surveys and market research. It uses the direct, unmediated experiences of building users as the basis for evaluating how a building works for its intended purpose.

2.2 Levels of POE

There are three levels of POE: Indicative, investigative and diagnostic. The indicative POE is the first level carried out in a short period of time to determine whether there are serious problems in the building. The next level is the investigative POE which is carried out after an indicative POE has identified issues

that need further investigation. The third level is the diagnostic POE which may take from several months to a year and the results are long-term oriented to improve not only a particular facility but also the state of the art in a given building type.

2.3 Process of POE

The process of POE includes:

- i. Study and analysis of as-built drawings.
- ii. Preparation of questionnaires for management and workers/users in the building(s).
- iii. Walk-through evaluation – this involves a complete physical examination of the building by the POE team.
- iv. Interviews – the POE team finally interviews selected personnel at the end of the walkthrough (Zubairu, 2002).

Post occupancy evaluation involves measuring the suitability and convenience of facilities through the following:

- (i) Systematic consideration of opinions of users about buildings in use.
- (ii) Onsite inspection of existing infrastructure.
- (iii) Prescribing possible means of improvement of these facilities (Preiser *et al.*, 1988).

Equally, POEs are used for many purposes including;

- (a) Developing new facilities.
- (b) Managing and improving on new buildings.
- (c) Establishing better building and maintenance standards.

2.4 Buildings whose designs were influenced by POEs

As the importance of POE was realised, designers utilised findings to change designs of buildings to meet the yearning of users. In Germany, Netherlands and Scandinavian countries, it is mandatory that users are consulted in the design of public buildings.

2.4.1 Changes in floor plans of office buildings - POEs indicated that workers in office buildings prefer to work near windows which they can open if they wish to. This changed the floor plans of many office buildings from deep open plan to group spaces or narrower open plan offices. These changes can be seen in the following office buildings:

(a) NMB (now ING Bank) Headquarters, Amsterdam, Netherlands (1987)

The building was designed by Ton Alberts of Alberts and Van Huut and the unique configuration was to ensure that workstations were as close to windows as possible (see Plate 2.1)



Plate 2.1 - NMB (now ING) Headquarters, Amsterdam, Netherlands
Source: *Architecture Guide* (2018)

The workers appreciate the beautiful and comfortable working environment and this has enhanced productivity.

