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Journal of Strategic Information Systems 13 (2004) 61–85

*Strategic  
Information  
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# The relationships among management accounting information, organizational learning and production performance

Jong-min Choe\*

*Department of Accounting, School of Business, Kyungpook National University,  
Buk-ku Sankyuk-dong 1370, Taegu 702-701, South Korea*

Available online 27 February 2004

## Abstract

This study adopted the organizational learning perspective to examine relevant types of management accounting information required by advanced manufacturing technology (AMT) for attaining improved production performance. First, we investigated the relationship between the level of AMT usage and the amount of information provided by management accounting information systems (MAISs). The results of this study showed a positive correlation between the AMT level and the amount of management accounting information (i.e. planning and control information, and nonfinancial performance information). A significant positive relationship between provision of information and improvement in production performance was also observed. This study also empirically examined the learning promoting effects of organizational facilitators, which is complemented and assisted by information technology. The empirical results demonstrated that facilitators of organizational learning have a moderating impact on the relationship between provision of information and performance improvement. Therefore, it is concluded that when learning facilitators are well arranged and highly utilized, a provision of information is more likely to be linked to effective learning and, consequently, improved performance.

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*Keywords:* Facilitators of organizational learning; Organizational learning; Management accounting information; Information technology; Production performance; Advanced manufacturing technology

## 1. Introduction

Previous studies (e.g. Yadav, 1985; Blaylock and Rees, 1985; Specht, 1986; Lederer and Smith, 1989; Choe, 1998) employed a contingency approach to investigate and

\* Tel.: +82-53-950-5445.

*E-mail address:* [choejj@bh.kyungpook.ac.kr](mailto:choejj@bh.kyungpook.ac.kr) (J.-m. Choe).

identify types of relevant information under diverse circumstances. Through the contingency theory, prior research has examined relationships between contextual variables and information characteristics of information systems (ISs) that affect organizational performance. Recent studies, however (e.g. [Chenhall, 1997](#); [Sim and Killough, 1998](#); [Fullerton and McWatters, 2002](#)), adopted the organizational learning perspective to identify relevant types of management accounting information that are required by advanced manufacturing technology (AMT). They asserted that when AMT is utilized, some types of information produced by management accounting information systems (MAISs) can improve production performance through organizational learning.

[Sim and Killough \(1998\)](#) empirically showed that under AMT, organizational learning effects of performance information can contribute to the improvement of production performance. [Chenhall \(1997\)](#) also partially demonstrated that the total quality management (TQM) related performance information in TQM systems has a positive impact on production performance through organizational learning. In the study of [Fullerton and McWatters \(2002\)](#), it was not fully supported that the learning effects of performance information in a just-in-time environment can improve production performance. [Vandenbosch and Higgins \(1995, 1996\)](#) empirically suggested that there exist direct relationships between learning effects of information and organizational effectiveness.

Although prior studies employed the organizational learning approach in order to examine and identify types of information that positively influence organizational performance, they did not consider the key learning related variable (i.e. facilitator of organizational learning). It is generally accepted that to only provide information is insufficient for effective organizational learning. The facilitators of learning must be well arranged first for the information to be linked to effective learning and consequently, improved performance ([Grant, 1996](#); [Argote, 1999](#)). Therefore, without consideration of the conditions of learning facilitators, it cannot be confirmed whether the significant impact of information on organizational performance is caused by organizational learning.

In addition to omitting key research variable, previous studies investigated only the learning effects of performance evaluation information when AMT is used. Other types of management accounting information that have a positive impact on production performance through learning were not examined. In fact, there are various kinds of management accounting information, such as planning information, cost control information, and financial or nonfinancial performance information, that may be demanded by AMT ([Scarbrough et al., 1991](#); [Chenhall and LangfieldSmith, 1998](#)).

Therefore, the purposes of this paper are: first, we empirically identify various types of management accounting information that positively relate with the level of AMT usage; second, both the positive effects of information through organizational learning and the indirect impact of AMT through types of information on production performance are also investigated; third, we empirically demonstrate whether the impact of information on production performance is different according to the conditions of learning facilitators; finally, since information technology also can facilitate and promote organizational learning ([Kock and McQueen, 1998](#); [Scott, 2000](#); [Irani et al., 2001](#)), this study suggests which functions of organizational learning facilitators can be properly complemented or replaced by information technology.

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