



SULTANATE OF OMAN

MINISTRY OF HIGHER EDUCATION

COLLEGES OF APPLIED SCIENCES (CAS)

A large, reflective sphere (a Newton's cradle ball) is positioned on the left side of the cover, resting on a newspaper. The newspaper text is blurred and serves as a background for the lower half of the cover. The sphere is highly reflective, showing highlights and shadows.

# OMANI JOURNAL OF APPLIED SCIENCES

*Bi-Annual Refereed Scientific Journal*

Volume 2

Issue 1

July 2010

ISSN 1990 - 5149

# **OMANI JOURNAL OF APPLIED SCIENCES (OJAS)**

*Bi - Annual Refereed Scientific Journal*

ISSN 1990 - 5149

## **PATRON**

H.E. Dr. Abdullah Mohammed Al Sarmi

The Undersecretary of the Ministry of Higher Education

## **EDITOR IN CHIEF**

Dr. Said Hamed Al-Rabiey

## **ASSOCIATE EDITORS**

Mr. Abdullah Khalfan Al-Shuaili

Dr. Aisha Al Ghafri

## **GUEST EDITOR**

Dr. Steve Bakalis

## **EDITORIAL BOARD MEMBERS**

Prof. Conrad Ozog

Dr. Mohit Kukreti

Prof. Robert Craig

Mr. Randell Arthur

Mr. Simon Green

Mr. Zulkarnain Mohammed Dahlin

## **INTERNATIONAL ADVISORY BOARD**

Professor George Bitros, Athens University, Greece

Professor Kenneth Wilson, Director National Research Foundation, UAE

Professor Graeme Hugo ,University of Adelaide, Australia

Professor Li Jusheng, University of Beijing, China

Dr. Kenneth Backman, Clemson University, South Carolina, USA

COPYRIGHT AND PERMISSION : All right reserved. Writing permission must be obtained from the Omani Journal of Applied Sciences (OJAS) for copying or reprinting text. Request for permission should be directed to the Editor in Chief , OJAS, E-mail : [cas\\_journal@mohe.gov.om](mailto:cas_journal@mohe.gov.om)

Printed at the Al Haitham Printing Press, Oman

---

# **Omani Journal of Applied Sciences (OJAS)**

Bi - Annual Refereed Scientific Journal

ISSN 1990 - 5149

The Omani Journal of Applied Sciences (OJAS) provides a forum for researchers and practitioners to discuss, analyse and shape current issues related to their specialization as well as from a multidisciplinary perspective. The journal has an applied research orientation, and includes both quantitative and qualitative empirical studies on contemporary issues and debates that will encourage and motivate future research as well as providing the foundations for the application of research findings. The journal adopts a region-specific as well as an international orientation with a comparative approach.

## **Aims of the Journal**

1. Publishing academic research, and scientific studies in the fields of applied science in communication, design, IT, international business, engineering and English language.
2. Reviewing discussions of new issues related to higher education and scientific research.
3. Developing scientific research and encouraging academic specialists to carry out scientific research.
4. Monitoring important scientific activities such as conferences, symposiums, workshops, surveying and commenting on dissertations.
5. Reviewing and commenting on recent publications.

The Omani Journal of Applied Sciences (OJAS) is published Bi - annually. Special Issues of the journal devoted to topics in vogue will also be published occasionally. Papers, case studies, etc., are invited for submission by prospective authors. All papers are internationally refereed and should represent the results of original research which have not previously been published. Contributors should refer to the Guidelines to Authors when preparing their manuscripts. It is also the responsibility of the contributors to obtain permission from authors for data or quotations attributed to the latter. Views expressed in the articles are the sole responsibility of the contributors.

# Contents

<b>A NOTE FROM THE GUEST EDITOR</b>	iii
<i>Dr. Steve Bakalis</i>	
<b>SHORT BIOS OF CONTRIBUTORS</b>	iv
<b>Promoting Better Quality Teaching at University: The Importance of Understanding Teaching Conceptions</b>	1
<i>Dr. Lynne Leveson and Dr. Terri Joiner</i>	
<b>Qualitative Characteristics of Financial Reporting: The Changing Profession.</b>	19
<i>Dr. John Chibaya Mbuya and Dr. Amer Al Hajri</i>	
<b>Economic and Manufacturing Development in Oman</b>	45
<i>Prof. Nazar Al – Rubayi and Mr. Sriram Balasubramanian</i>	
<b>E-Learning Designing and Implementation based on the Australian Flexible Learning Framework (AFLF)</b>	71
<i>Mr. Ayub Al-Badowi</i>	
<b>DOCTORAL DISSERTATIONS</b>	
<b>Composite Repair Systems For Steel Pipes</b>	82
<i>Abdallah A.K.Al-Maskari</i>	
<b>A Voting Median Base Algorithm for Approximate Performance Monitoring of Wireless Sensor Networks</b>	83
<i>Yaqoob J. AL Raisi</i>	
<b>The Role of Managers and Their Effectiveness in Civil Service Organizations: A Field Study of Omani Civil Service Managers</b>	84
<i>Hamood Said Hamed Al-Asmi</i>	
<b>An Evaluation of the Initial Scientific Field Teacher Education Programme in the College of Education</b>	85
<i>Ahmed Ibrahim Alkindi</i>	
<b>CONFERENCES AND SYMPOSIUMS</b>	
<b>Forum: Sustainable Development in Oman and the French Expertise 15th &amp; 16th November 2009, Crowne Plaza</b>	87
<b>GUIDELINES TO AUTHORS</b>	90

---

## A NOTE FROM THE GUEST EDITOR

We proudly present to you the Omani Journal of Applied Sciences (OJAS) Volume 2, Issue 1, July 2010, which proposes to its readers, the findings of research in a verity of scientific areas. This second edition of the journal builds on the continuous support and commitment from the Colleges of Applied Sciences (CAS), the Ministry of Higher Education to encourage the development of a research culture in Oman.

A highlight of this strategy was the workshop that was held in April 2009, with a specific focus on “Research and Development in Knowledge-Based Economies and the Role of Higher Education Institutions”. The workshop was organised by the Ministry of Higher Education in collaboration with the Deans of the Colleges of Applied Sciences (CAS). The Ministry views the development of research synergies and partnerships are pivotal to achieve the objectives of the National Research Strategy which aims to build research capacity, knowledge transfer, and to create the enabling environment for research.

The overriding goal of the workshop was to provide a platform for starting up the process that will see the formulation of a research and development policy for the Colleges of Applied Sciences specifically, but also for Higher Education Institutions in Oman. This is consistent with the Ministry’s diverse efforts to make higher education institutions in Oman the key drivers for Research and Development.

Our efforts in this direction are aligned with those of the Oman Research Council, which considers research as representing one of the main pillars for all countries to achieve welfare and advancement for their citizens. In addition to its role in impacting the economy, research is considered as the basic element for motivating and inspiring creativity and innovation, and in building and developing industries, which are the main factors for creating knowledge-based economy.

In this context, we see The Omani Journal of Applied Sciences (and related activities) as a platform for providing a forum for researchers and practitioners to discuss, analyse and shape current issues related to their specialization as well as from a multidisciplinary perspective. We thank all authors for the quality of the manuscripts they submitted to our review and we extend our appreciation to the scholars who volunteered their expertise to review these intellectual contributions. We also congratulate those that have successfully completed their doctoral studies and shared some their key findings with the readers of this journal. In this spirit, we encourage postgraduate students to consider the submission of their research articles to the Omani Journal of Applied Sciences (OJAS) in the future.

Finally, we invite you to give us some feedback and suggestions for future improvement. We sincerely thank you and we hope to have the privilege of reviewing your work in the near future.

*Dr. Steve Bakalis*

---

## SHORT BIOS OF CONTRIBUTORS

### **Dr. Therese Joiner**

Dr. Joiner is Head of School of Management, Faculty of Law and Management, Latrobe University Australia. She has an interest in teaching International Management, Organization Theory, and Organization Behaviour. Dr. Joiner's research interests include cross-cultural management, managing people and organizations and management education. She has published in international and domestic journals such as Australian Journal of Management, Australian Health Review, Journal of Managerial Psychology, International Journal of Management and Decision Making and International Journal of Education Management. Dr. Joiner also regularly presents at international and domestic academic conferences.



### **Dr. Lynne Leveson**

Dr. Lynne Leveson is the Director of Teaching and Learning in the School of Management, La Trobe University. Her previous teaching experience includes work in the Victorian Secondary, Teacher education and TAFE sectors, the Corrective Services Department and the UK University sector. Apart from teaching and researching in the area of organizational behaviour, Lynne has a strong research interest in teaching and learning in higher education from a conceptions-based / phenomenographic perspective. Currently Lynne's research is focused on three main projects – an empirical study into the relationship between accounting academics' epistemological and disciplinary beliefs and their teaching practice, on student engagement among first year university students and an ALTC funded investigation concerning embedding generic skills into the business curriculum.



### **Dr. Amer Sultan Amer AlHajri**

Dr. Alhajri was born in the Wilayat of Bediya (Sharqiya Region of Oman) in 1964. He got scholarship from the Omani Government to study for a degree in Economics and Finance at New Hampshire College, London Centre from 1984 to 1988. The British Council gave him another scholarship in 1992 to complete his Masters degree in Information Manage-

---

ment at the Department of Information Studies, the University of Sheffield, UK. He also had another opportunity from the Omani Government to do a PhD in the Economics of Education and graduated in 2002 from the Department of Economics, the University of Sheffield, UK. Dr. Alhajri, worked as an economic researcher and planner in several Omani Government Ministries for more than seventeen years, including nine years at the Ministry of Higher Education. From 2004 to 2007, he worked as a full time Senior Lecturer in Economics and Business at the College of Banking and Financial Studies, Oman. He is retired now, and employed in some part time teaching in colleges and universities in Oman and UAE. His main research interest is focused on the economics of education, including investment and financing of higher education.

### **Dr. John C. Mbuya**



Dr. Chibaya Mbuya is an international authority, author and lecturer on risk management, accounting and banking and is regarded as having pioneered many of the systems, procedures and training programmes which companies can put into place to handle the risk aspects of their businesses. Dr. Mbuya was principal senior lecturer (Banking) in the Department of Economics and Econometrics, University of Johannesburg, where he specialised in Banking and Risk Management. John graduated from De Montfort University (UK) with an MBA and a PhD in Banking from University of Johannesburg. He is a seasoned corporate banker, part-time University lecturer in South Africa, Botswana and Mozambique, part-time HIV/AIDS counsellor in Southern Africa and a women and child abuse activist. He has worked for Nedbank, Industrial Development Corporation (IDC), Teba bank and the then Saambou bank.

### **Professor Nazar Abbas Al – Rubayi**

Prof. Nazar is an industrial planning expert with the Ministry of Commerce and Industry Muscat, Oman. He had worked in various R&D organizations and teaching institutions, have nearly 30 years of experience, including 16 years of teaching as professor of econometrics, industrial and commerce subjects, published 25 research papers, and done 15 consultative studies and one book, attended 14 conferences, many workshops, and supervised many MSc. theses in economics.





### **Mr. Sriram Balasubramanian**

Mr. Sriram has more than 22 years of experience in various countries in different sectors in which more than 18 years in teaching. He has conducted 7 seminars, workshops and have completed 2 research papers.

### **Mr. Ayub Al-Badowi**

Mr. Ayub Al Badowi is a media specialist at Nizwa College of Applied Sciences for about 10 years. He has master Degree in Information Systems Engineering from Cyprus International University, Cyprus. Mr. Ayub has a keen interest in anything that makes corporate learning engaging, effective, and scalable. He follows learning solutions and technology including tools, LMSs, Soft System Methodology, Content Management, Website Design Methodology, Mind Mapping, and e-learning with a deep background in Media Technology.



---

# PROMOTING BETTER QUALITY TEACHING AT UNIVERSITY: THE IMPORTANCE OF UNDERSTANDING TEACHING CONCEPTIONS

---

**Dr Lynne Leveson and Dr Terri Joiner**

## ABSTRACT

Efforts to improve teaching in order to improve student learning in higher education generally focus on the repertoire of strategies that teachers might employ. There is growing evidence, particularly within the ‘approaches’ to teaching literature to suggest that these strategies are not arbitrarily conceived but are more likely to be part of an integrated system of a teacher’s thoughts and actions. As a corollary, there has been increased interest in investigating teachers’ beliefs about teaching. Few studies however, have focused specifically on accounting education. The motivation for the study described here is to address this lack of research. The study investigated the approaches to teaching of accounting academics working in universities in Australia and New Zealand. A range of approaches and their relationship to other aspects of their teaching work are described. The results contribute to our understanding of what constitutes excellence in teaching in accounting in three main ways. Firstly, they help to map the range and nature of teaching conceptions held by academics in a relatively under-researched area. Secondly, they help to define excellence in teaching by identifying the educationally critical features of conceptions more likely to be associated with better quality teaching than those which are not. Thirdly, they offer additional insights into what constitutes quality in teaching by describing the relations between conceptions of teaching, learning and approach.

## KEYWORDS

*Approaches to teaching, accounting, phenomenography, conceptions of teaching and learning.*

## 1. INTRODUCTION

The body of research known as ‘approaches to learning’ research has offered profound insights into what constitutes effective or high quality learning and what does not. This research characterises a student’s approach to learning as an expression of their response to a particular context rather than as something which is constitutionally-based and relatively fixed. Accordingly, it is contended that a student’s approach to learning may change depending on how they perceive the particular learning context at hand (Ramsden, 1992, 2003; Mladenovic, 2000; Biggs and Tang, 2007).

An important aspect of this context is teaching. How and what teachers teach profoundly affects how and what their students learn. Whether they are aware or not, all teachers have some belief or conception about what teaching is and their conceptions deeply affect the kind of learning environment they create in the tutorial room and in the lecture theatre (Biggs and Tang, 2007). A central tenet of the approaches to learning framework is that generally, learners learn best when they adopt a deep rather than a surface approach to learning (van Rossum and Schenk, 1984; Ramsden, 1992, 2003; Gow and Kember, 1993; Crawford, Gordon, Nicholas, and Prosser, 1994; Kember, 1997; Marton and Booth, 1997). Accordingly, effective teaching is regarded as something that should encourage and support activities appropriate for deep learning and discourage those which are not (Biggs and Tang, 2007). Studies in a range of disciplines have found that in terms of structure, certain conceptions are associated with better quality teaching and superior learning outcomes than others. According to these studies developing a better understanding of teachers’ conceptions in any particular discipline is an important first step in identifying ways of helping teachers to teach more effectively (Marton and Booth, 1997; Prosser and Trigwell, 1999).

In this study, thirty Australian and New Zealand accounting academics were interviewed at length about their approaches to teaching, their conceptions of teaching and their conceptions of their students’ learning. Using phenomenographic method, four qualitatively different ways of conceptualising teaching and five for learning and teaching approach were constituted from the data. In keeping with the findings of studies in non-accounting disciplines, teachers’ conceptions broadly fall into one of two orientations – teacher-centred/content and a student-centred/learning orientation. The results also reveal that individual academics generally expressed beliefs about each of the aspects of teaching that were inherently consistent. On the other hand, there was a wide variation between individuals in terms of the level of complexity of their beliefs.

## 2. LITERATURE REVIEW

### 2.1 Approaches to teaching, conceptions of learning and teaching and the relations between them

Research in higher education has established that academics have distinct, qualitatively

different conceptions about learning and teaching and approach their teaching in qualitatively different ways consistent with these conceptions (Martin and Balla, 1991; Dall'Alba, 1990; Samuelowicz and Bain 1992; Trigwell Prosser and Taylor, 1994; Trigwell and Prosser, 1996). Despite differences in terminology and method, a consistent finding across all was a clear distinction between an orientation that was either teacher-centred/transmission focused or student-centred/change focused (Dall'Alba, 1991; Martin and Balla, 1991; Samuelowicz and Bain, 2001; Kember, 1997; Prosser and Trigwell, 1999).

Research has also revealed that teachers describe how they approach their teaching in ways that are consistent with their expressed beliefs about teaching and learning. For instance, Trigwell et al., (1994) investigated teaching approaches (here defined as a teaching intention and associated teaching strategies) in the sciences. They identified five types (or categories) of approach ranging in complexity from an intention to transfer information using teacher-centred strategies to an intention to encourage students to engage in meaningful learning by using student-centred strategies. On face value, this is suggestive of the teaching equivalent of deep and surface approaches to learning.

## **2.2 The relationship between conceptions of teaching and learning and teaching approaches**

The researchers also investigated the relationship between approach and lecturer's conceptions of teaching and learning (Trigwell and Prosser, 1996). They identified a statistically strong relationship between conceptions of teaching and approaches to teaching and a significant although less strong relationship between conceptions of teaching and of learning. The authors point out that since the object of their research is ultimately to improve teacher development programs their main focus was to obtain insights nature of the relationships. They report for instance, that teachers with more complex conceptions could explain what teaching and learning meant to them and how the two related to each other. On the other hand, those with less complex conceptions could explain what teaching meant to them but "could not see the point of explaining what they meant by learning" (1996, 282). A parallel may be drawn in accounting where Lucas (2002, 198) notes that whilst all lecturers in her study expressed some doubt about the relationship between accounting technique and conceptual understanding and the questions this raises, those who expressed the less complex conceptions "regarded [these] as interesting questions but not of sufficient importance to require a fundamental revision of, or experimentation with, the teaching of accounting". Developing an awareness of the relationship between teaching and learning may therefore be fundamental to improving teaching.

## **2.3 The relationship between approaches to teaching and approaches to learning**

Efforts to better understand the learning process have focused on understanding the link

between how students approach their learning and their learning outcomes. There is now growing interest in exploring how teaching links with learning. Research suggests that students who conceive of learning primarily as a search for meaning are more likely to adopt a deep approach to learning and achieve better quality outcomes than students who adopt a surface learning approach and who view learning primarily as a quantitative increase in facts/knowledge (van Rossum and Schenk, 1984; Ramsden, 1992; Gow and Kember, 1993; Crawford et al., 1994; Kember, 1997; Marton and Booth, 1997).

More recently, researchers have examined more closely the link between teaching, learning approaches and learning outcomes. Gow and Kember, (1993) studied the relationship between conceptions of teaching (or ‘teaching orientation’) and students’ study approaches within 16 departments at two tertiary institutions. Using data from questionnaire and survey they identified a “clear relationship between knowledge transmission and less desirable study approaches” and “learning facilitation and more meaningful student learning approaches” (1993, 31). This study was undertaken at the departmental level and the authors speculate as to whether the relationship would be stronger at the individual level (Kember and Gow, 1994). In a later study involving 4,000 university science students and their teachers Trigwell, Prosser and Waterhouse (1999) found that where teachers described their teaching in teacher-centred/transmission terms, their students were more likely to report adopting a surface approach to learning in that subject and that conversely (although less strongly) where the teaching was described in student-centred/meaning terms, the students were more likely to report significantly deeper approaches to learning.

In a two-year study of secondary school history and physics Patrick (1998) was able to gain important insights into the processes by which teachers’ teaching influences their students’ learning approaches and learning outcomes. Patrick found that teachers teaching the same subject articulated fundamentally different conceptions of what knowing that subject involved and that this influenced what and how they taught. She found a ‘remarkable match’ between a teacher’s interpretation of and approach to teaching their subject, their students’ interpretation of that subject and importantly, the quality of their final results. It was found for instance, that those teachers who viewed physics as a way of understanding occurrences in the natural world focused on teaching natural phenomenon and Newtonian physics. Those who saw the subject as an explanatory system involving scientific observation and experimentation focused on applying physics theory to measurement, prediction and problem solving. Where teachers viewed physics as the calculation of mathematical relationships and manipulation of variables their teaching concentrated on managing and remembering formulae.

Similar results were found by Rovio-Johannson (1999) who studied the relationship between teaching and learning in a first year university accounting subject. The teachers had agreed upon the interpretation of the curriculum, course objectives, course content and the lecture program. Additionally, they agreed upon the concepts to be given priority and the examples to work through for each lecture. Lectures were videotaped and then reviewed by the

researcher and each lecturer using seminars and interviews. Like Patrick, Rovio-Johansson found “remarkable similarities” between each teacher’s interpretation of the topic, the way they taught the topic and the approach their students took to solving prescribed lecture problems. For instance, in one class the technical aspects of accounting were stressed, students typically used their time to search for the right formulae to solve problems. On the other hand, in another where the teacher emphasised the significance of the solutions, students focused on determining the meaning and the implications of their answers.

In summary, there is strong evidence to suggest that the conceptions of teaching and learning held by teachers is related to how they describe their teaching approach and this in turn, is linked to the quality of students’ learning outcomes. While conceptions indicate ‘reality-as-perceived’ and are not evidence of actual practice, knowledge about these complements observational studies by providing insights into the thoughts that underpin actions. From this perspective, teaching can be viewed as a complex of relationships rather than as a series of discrete processes. According to this, the most observable of teacher actions, their strategies, are regarded not as being arbitrarily conceived and executed but as part of an integrated system of thought and action. Therefore, there has been much interest within phenomenographic circles in particular, to investigate teacher conceptions. The motivation for the study described here is that to date, few studies have focused on approaches to teaching and fewer still on accounting despite its place as a key discipline in universities world wide.

### **3. THE RESEARCH STUDY**

#### **3.1 Aim**

The aim of this study is threefold. Firstly, in view of the limited knowledge available about the discipline it sets out to describe and map the qualitatively different ways in which a group of accounting academics conceptualise key aspects of their teaching work. Secondly, the study aims to identify the critical features that differentiate the more complex from the least complex conceptions. Thirdly, the study seeks to identify any relationships between the conceptions of the three aspects investigated that may add to our knowledge of what constitutes effective teaching in accounting at the university level.

#### **3.2 Data collection and analysis**

As the aim of phenomenographic investigation is to obtain maximum variation of how the selected topics are understood, the sample was deliberately chosen to optimise this. Thirty-four academics from 10 universities were contacted by email/phone 30 agreed to take part. Their positions ranged from associate lecturer to professor and their age and length of experience varied between 21-65 years and three to 35 years respectively. Some were active researchers in the education field and others were not involved at all. The details of the gender and accounting specialisation of the participants are given below.

**Table 1. Gender And Primary Accounting Specialism Of Sample**

	Financial		Management		Total
	Male	Female	Male	Female	
Associate lecture 1	2	1	2	6	
Lecturer	3	2	1	3	9
Senior lecturer	2	1	2	2	7
Associate professor	1	1	2		4
Professor	2			2	4
Total	9	6	6	9	30

Data was collected through semi-structured interviews of 60-90 minutes duration. The participants were asked a series of questions concerning their beliefs about teaching, their students' learning and how they go about the practical and intellectual tasks associated with preparing for and conducting their first and their third year classes. The interview data was analysed using the phenomenographic method. This entailed pooling the transcript data and combing through the whole to identify the qualitatively different conceptions of teaching, learning and teaching approach and importantly, the critical differences between them. Each conception can be thought of as portraying a particular degree or level of awareness about the phenomenon being investigated.

Kember (1997) outlines the various ways in which the results for teaching conceptions can be presented. In this study the conceptions identified are presented as different levels (or categories of description) within a hierarchy. Conceptions that take more aspects of the phenomenon into account are placed higher than those that are considered as more limited descriptions of the phenomenon. Taken as a whole, the hierarchy should provide a holistic view of the phenomenon. In this respect, the researcher must try to ensure that each successive theme or conception incorporates all the key aspects of those below it as well as critical aspects that distinguish it from the others. This ordering is purely structural and not a commentary on which is better or worse although many studies have concluded that the more complex conceptions are more 'enabling' or 'facilitative' than the least complex in teaching and learning situations.

Optimally, this process helps to ensure that no key ideas or notions are omitted. However, it is acknowledged that another researcher working with the same data may arrive at a somewhat different set of categories. This raises the issue of reliability. Appropriate measures for phenomenographic studies have been discussed by a series of researchers recently (Sandberg, 1997; Ashworth and Lucas, 2000; Leveson, 2006). The measure adopted for this study

is referred to as 'interjudge communicability'. This entails independent researchers classifying representative quotations into the hierarchy of themes as supplied by the researcher. Disagreements are resolved through re-analysis of the data and/or additional justificatory notes supplied by the researcher. A standard of 80%+ agreement is suggested by established researchers (Marton, 1986; Säljö, 1988). Three co-judges were used – two whose primary expertise is in the method and one whose expertise is in the discipline itself. Ultimately, an average of 90% agreement was reached in the findings of the three areas of investigation. This process yielded results relating to the first two aims of the study:

- ▶ describing and mapping the range of conceptions about teaching, learning and approach
- ▶ identifying the critical features that differentiate the more from the least complex conceptions

After this each transcript was classified according to the category that represented them the most closely. This was done three times, once for each of the three aspects of teaching work investigated. A pattern of distribution for each was plotted and compared and the relationships analysed.

## **4. RESULTS**

From the data, four qualitatively different ways of conceptualising teaching and five for both learning and teaching approach were constituted. Summaries are presented in Tables 2, 3 and 4. Owing to space limitations, the following discussion will be largely confined to approaches to teaching.

### **4.1 Categories of description**

#### **4.1.1 Approaches to teaching**

The study participants were asked a series of questions that encouraged them to reflect on how they

prepared for their classes, what they actually did in the classroom and why. The five qualitatively different approaches to teaching identified in the data can therefore be described in terms of an intention and a strategy, much the same as has been identified for student approaches to learning, noted earlier. A brief description of the categories is provided in Table 2. below.

**Table 2. Summary Of Categories Of Description Approaches To Teaching Accounting**

Level	Category
E	A student-initiated, student-centred strategy with the intention of encouraging growth and change.
D	A student-centred strategy with the intention of encouraging a relational understanding of the discipline.
C	A teacher-initiated, student-centred strategy with the intention of encouraging the development of basic disciplinary concepts.
B	A teacher-initiated, student-activity strategy with the intention of helping students acquire basic accounting concepts.
A	A teacher-centred strategy with the intention of transmitting information in order to develop competence in basic accounting procedures.

Category A - Here, the approach is one in which the lecturer aims to supply students with sufficient factual information and demonstrations of procedure to enable them to master the technical aspects of the subject - ultimately to fulfil assessment requirements. The associated strategy is one in which the lecturer plans for and conducts classes using their own perspective or world-view as the primary point of reference. Whilst students are expected to participate, their activity is almost exclusively directed by the lecturer.

Whilst short quotations rarely manage to convey the fullness of conceptions the following are included to help illustrate the critical points of differentiation between the five categories. The following quote is typical of a teacher-centred/transmission approach.

**How do you give a lecture to your first year class? What sort of things do you do?**

Ah, ... always use the overhead projector if I had stuff which was relevant to the whole lecture which was like reference material I'd put that on the blackboard so I could refer to it. Um, ah, use point headings ... um (pause)

**What's your intention of using point headings?**

Well I mean, it's the classic rule for giving lectures. Tell them what you're going to tell them, tell them and tell them what you've told them, and using the point headings is a cue for me as a lecturer and a point at which a student can um, see my argument being developed.

Category B - The approach represented here is an extension of approach A. in that descrip-

tions of intention and strategy refer to accounting concepts as well as facts. This suggests a teaching intention designed to help students appreciate accounting at a more issues-based/abstract level to the technical and procedural represented in category A. The strategy of helping students “to acquire” rather than “to transmit” although teacher-centred, also suggests a sense of how students might accomplish this by themselves and be less reliant on the teacher. Thus, the references to “main issues”, “convey”, and “this way of thinking” are regarded as differences with category A that are educationally significant.

### **How do you give a lecture to your first year class? What sort of things do you do?**

I give them a lecture on the topic and I also direct them in one or two activities or exercises.

### **What’s your intention of using activities and exercises?**

Because you run the risk of people just drifting off if they’ve got nothing to do ... There’s several things you’re balancing. You’re balancing what you are delivering verbally to them, which is not exactly the same as what is on the dot points ... so I’m delivering a lot more than a dot point ... I’m trying to convey this, convey an understanding while I’m talking. I’m putting the main issues up but I’m conveying how things link together, trying to convey this way of thinking to people.

While the focus of the intention described here is on technical procedures and transmitting facts, the scope is wider and incorporates accounting concepts and issues. Compared to the teaching objective described in category A, acquiring concepts requires more active involvement on the part of the learner to enable them to appreciate the subject on a more abstract level. Therefore, the associated strategy whilst essentially teacher-focused is experienced as one in which a more active role is provided for students.

Category C – This conception includes an awareness of the need for students not only to understand concepts conveyed by their teacher but also to develop concepts of their own. This involves adopting an objective attitude to accounting information based in part on their personal experience. Almost by definition, this requires a strategy that incorporates a student as well as a teacher perspective. These aspects are considered as representing a distinctively different approach to teaching than is represented by the previous categories.

### **How do you give a lecture to your first year class? What sort of things do you do?**

... I give them lecture notes . . . . I would hope [the lecture notes] would be just enough to kick start them into looking at their text book.

### **What’s your intention in encouraging students to read the textbook?**

Some of them don’t seem to be reading their text book ... At the start of the course I

would say “Well look, the lecture notes point you in the direction. If you’re happy with that, you attempt the tute work. If you’re not, then you might go back. You might want to read the text book, underline it, cross check between the two, and build up your *own* ideas” . I also want them to start coming to me and asking questions.

The idea of students developing concepts of their own rather than absorbing those provided by the teacher is an educationally significant difference with the conception expressed in category B.

Category D - The intention that underpins teaching practice here moves beyond that of encouraging concept development to that of challenging students to adopt a critical/evaluative attitude towards accounting information and of creating an expanded awareness of what “accounting” is both in interdisciplinary and practitioner terms. In this respect, this category embodies an awareness of what constitutes an approach to teaching that is very different to those that precede it. In its expanded form this conception contains features that are specific to the accounting discipline. The associated strategy is student-centred. Here the student is regarded as the chief agent of learning and the teacher provides opportunities and sets challenges consistent with this belief.

### **How do you give a lecture to your third year class? What sort of things do you do?**

Students also have to do a written report which they do individually. They go away and do the research on it and I haven’t given them any indication of what my thoughts on the topic are.

### **What is your intention with this strategy?**

I’m looking for a particular type of learning, um, (at) the highest level I look for some sort of critical analysis of what they’ve researched ... They perhaps even get to the stage of challenging what they thought it was about. That’s getting really up there. Um, they don’t quite challenge me yet but that might come in the final year I think! But some indication in their written report that they have some, they are confident to acknowledge what someone has written but to question it in some way. That to me is really, really difficult for students ... I like to see students who really do look at some of the issues and relate it back to the business environment, to the business context.

The references to “challenging” and to the teacher refusing to reveal their own attitude in order not to influence the students’ critical analysis are regarded as examples of educationally significant differences with the conception expressed in category C.

Category E – this conception embodies all the key features of those preceding as well as others which represent qualitative points of difference. Here, the strategy is designed around student-initiated as well as student-centred activity. The associated intention is to promote personal change and growth by challenging and encouraging students to confront issues -

personal, disciplinary and social in nature - in the belief that self-reflection, rather than instruction will induce meaningful learning. Teaching is also valued as a meta-disciplinary activity that reinforces intrinsic motivation and is transformative in some way.

The following statement helps to exemplify the more complex nature of this teaching approach.

### **How do you conduct a typical lecture with your third year class?**

I do not have lectures as such. For all 'similar' sessions I ask students to turn up at class having read an article ... In class a discussion on the article is led by a student who is graded by the rest of the class on how well they lead the discussion. I am one member of the audience during the discussion and sometimes remain silent ... So what I'm trying to do is to get them to talk to each other as much as possible and to talk to me as much as possible but I never, I try not to use my powerful position to impose my view on them at all ...

### **What is the intention behind this strategy?**

... I think the more people we can get to challenge that power base the better um, so I have students who I grade their essays perhaps very highly because they have a point of view which they express and justify very well and they make very powerful statements and very good arguments to support those statements. I **totally** disagree with where they are coming from but I'm **so pleased** that they are willing to express themselves ... I believe in holistic education and I attempt to get the students to talk about intuition, emotions, spiritual matters as well as logic.

In summary, the interview data revealed a range of different ideas about teaching intentions and strategies which collectively were ordered into a hierarchy of conceptions ranging from the least to the most complex. Broadly, categories A-C are regarded as falling within the information transmission/teacher-centred grouping and categories D-E as falling within the concept development and transformation/student-centred orientations.

#### **4.1.2 Conceptions of learning and teaching accounting**

As with teaching approach, the study participants were asked a series of questions encouraging them to reflect on their notion or conception of what it means to learn and to teach accounting with a specific focus on their junior and senior classes. Respectively, five and four qualitatively different conceptions were identified. These are listed in order of complexity in Tables 3. and 4. below.

**Table 3. Summary Of Categories Of Description - Conceptions Of Learning Accounting**

Level	Category
E	Learning in accounting as personal change and development through student-directed engagement with course material and requirements.
D	Learning in accounting as developing a relational understanding of the discipline.
C	Learning in accounting as developing concepts.
B	Learning in accounting as acquiring accounting concepts from sources external to student.
A	Learning in accounting as accumulating accounting facts from sources external to student.

**Table 4. Summary Of Categories Of Description - Conceptions Of Teaching Accounting**

Level	Category
D	Teaching in accounting as encouraging personal change
C	Teaching in accounting as encouraging concept development
B	Teaching in accounting as helping students acquire concepts
A	Teaching in accounting as transmitting facts

The terminology used to describe these conceptions and the nature of the differences between categories is very similar to that which describes teaching approach above. This is not surprising as all themes relate to aspects of the study participants' teaching. This reveals an internal consistency in the beliefs or conceptions as articulated by each individual on the one hand and a wide variation between individuals on the other.

#### **4.1.3 The relations between conceptions of learning, teaching and teaching approach**

As noted, the conceptions of learning, teaching and approach articulated in each transcript were also matched with the category in each of the hierarchies they most closely represented. Tables 5. and 6. show this distribution and the statistical analysis of the interview data.

**Table 5. Relations Between Ways Of Experiencing Learning And Approaches To Teaching**

Conceptions of learning	Approach to teaching					Total
	A	B	C	D	E	
A	6					6
B		7				7
C		6	5			11
D				3		3
E					3	3
Total	6	13	5	3	3	30

Kendall's tau- b .870 p= .000

**Table 6. Relations Between Conceptions Of Teaching And Approaches To Teaching**

Conceptions of teaching	Approach to teaching					Total
	A	B	C	D	E	
A	6					6
B		10				10
C		3	5	3		11
D					3	3
Total	6	13	5	3	3	30

Kendall's tau-c .856 p= .000

Kendall's tau-c was used to measure the strength of association between understanding and approach. This measure does not indicate causality but the results indicate a strong and statistically significant association between the teachers' reports of their approach to teaching and their conceptions of teaching and learning. The pattern shows a wide disparity in the beliefs about learning and teaching within the group and, at an internal consistency in individual beliefs. There was no correlation between categories and either the status or years of experience of the study participants.

## 5. DISCUSSION AND CONCLUSION

The findings of this study provide some insights into the various ways that aspects of teaching accounting are experienced by the academics concerned. Since the study investigates associations rather than cause and effect and since a single study is unlikely to reveal the full range of conceptions that accounting academics may hold, any conclusions must be drawn with caution. Moreover, as conceptions deal with “reality-as-perceived” they are not intended to portray actual pedagogical practice in the classroom.

Nevertheless, the results here are consistent with other studies that have investigated teaching conceptions. The consistency relates primarily to the identification of two quite distinct teaching orientations, commonly referred to as teacher-centred/transmission and student-centred/conceptual development and change. Broadly, those academics who conceive of teaching and learning accounting in terms of information transmission/reception are theoretically, likely to teach with this intention and use teacher-centred strategies in order to do so. On the other hand, those who conceive of teaching and learning accounting as involving conceptual and personal change are more likely to teach with the intention of promoting cognitive and affective change and to adopt student-centred strategies in order to do so. As it is this approach that is associated with a deep approach to learning, developing an expanded awareness of what constitutes teaching and learning accounting offers a practical way of improving accounting education particularly in light of the repeated calls for teaching to focus less on the procedural technical aspects of accounting in favour of more analysis and critical evaluation of current issues (Mathews, 1990; Accounting Education Change Commission, 1992; Institute of Chartered Accountants in Australia, 1994; Albrecht and Sack, 2000). The existing research into teaching conceptions in other disciplines does suggest that in order for university teachers to improve or change their teaching strategies they should be able to recognise and articulate their conceptions of teaching and learning. This appears to be a pre-condition for altering or refining that conception, which in turn is a pre-condition for altering or refining practice itself (if desired) (Prosser and Trigwell, 1997). A ‘conceptions map’ could act as a basis for such a process.

This does not mean that teachers with an expanded awareness of teaching and learning are unreservedly better teachers. This study did not take into account the influence of teachers’ perceived interest in the accounting unit taught, their personality or environmental constraints (such as limited time and resources) that may mediate their teaching approach (Agyris and Schon, 1974; Samuelowicz and Bain, 1992; Leveson, 2004). Nevertheless, those who are more aware of the complexities of teaching and learning can be considered as having the potential to engage in better quality teaching on the basis that they would be aware of and able to employ a greater number of options for teaching and subject interpretation.

Describing and mapping conceptions of teaching and learning in the accounting discipline was the first aim of this study. A second aim was to identify the critical features that dif-

ferentiate the more complex from the least complex conceptions. Identifying critically different aspects is a characteristic of phenomenographic analysis. In the context of this study they can provide a focus for educational designers, teacher trainers and the like, who are involved in helping academic staff expand their awareness of aspects of teaching and learning. Using the results of this study for instance, the focus would move from the concrete, tangible and quantifiable aspects of accounting to the abstract, conceptual and subjective aspects of the discipline. Learning would not only be about problem-solving and numeric accuracy but also involve a search for meaning and an appreciation that end-users have a variety of needs and that multiple answers are therefore possible. Ultimately, and consistent with studies in other disciplines, learning and teaching are transformational activities enabling students to better understand the world about them.

Thirdly, the study seeks to identify any relationships between the conceptions of the three aspects investigated. Perhaps unsurprising, individual beliefs were largely congruent with each other. Between individuals however, there was a wide disparity suggesting that within this group at least, beliefs about teaching and learning are not homogeneous. This supports the findings of other conceptions-based research and is one way that this research can usefully complement observational studies which can convey the impression of a high degree of homogeneity within teaching practice. This is a possible point of focus for future research as many suggestions for improving accounting education assume homogeneity and recommend 'one size fits all' solutions accordingly. A better understanding of the nature of variation among teachers may also lead to more effective targeting in the search for improvement policies and practices.

In accounting many researchers have noted the tendency among staff and students to view the discipline in predominantly technical/procedural terms (Shute, 1979; Booth and Winzar, 1993; Tempone, 2001; Lucas, 2001). Profiles of accounting students highlight their predisposition to adopting a 'format' approach to their studies (Lucas, 2001), including a preference for structure, rules, logic, step-by-step explanations and deductive rather than inductive reasoning (Booth and Winzar, 1993). The 'approaches' literature portrays teaching as a key element of the learning context that influences the approach students adopt towards their learning. The quest to improve learning therefore involves a quest to improve teaching. Many of the studies into academics' beliefs recommend that if teaching is to be improved, development programs must recognise their importance as part of the wider issue of introducing alternative and/or improved teaching strategies (Trigwell and Prosser, 1996; Kember, 1997). This is based on the supposition that academics may find it impossible to adopt more sophisticated teaching strategies because of the difficulties of conceiving anything that reaches beyond their own level of conceptualisation. The aim of conceptions-based research is to empirically investigate this proposition and to point to ways in which teaching and learning practices can be constructively improved.

## REFERENCES

- Accounting Education Change Commission *The First Course in Accounting*, Position Statement No. Two. Bainbridge W.A.: AECC, 1992.
- Albrecht, W. S., and Sack, R. J. Accounting Education: Charting the Course through a Perilous Future, *American Accounting Association*, 2000.
- Agyris, C. and Schon, D. Theory in practice: Increasing professional effectiveness, Jossey-Bass, USA, 1974.
- Ashworth, P.D. and Lucas, U. "Achieving empathy and engagement: a practical approach to the design, conduct and reporting of phenomenographic research", *Studies in Higher Education*, 25(3), 2000, 295-308.
- Biggs, J. B. and Tang, C. Teaching for Quality Learning at University. SRHE and The Open University Press, Berks, UK 2007.
- Booth, S. and Winzar, H. "Personality biases of accounting students: some implications for learning style preferences", *Accounting and Finance*, 33(2), 1993, 109-120.
- Crawford, K., Gordon, S., Nicholas, J., and Prosser, M. "Conceptions of Mathematics and how it is learned: the perspectives of students entering university", *Learning and Instruction* 4, 1994, 331-345.
- Dall'Alba, G. "Foreshadowing conceptions of teaching", in Ross, B. (Ed), *Research and Development in Higher Education*, 13, 1991, 293-97 (Sydney: HERDSA).
- Gow, L. and Kember, D. "Conceptions of teaching and their relation to student learning", *British Journal of Educational Psychology* 31, 1993, 93-97.
- Institute of Chartered Accountants in Australia *Chartered Accountants in the 21<sup>st</sup> Century: A Report of the 21<sup>st</sup> Century Task Force*, Sydney: ICAA, 1994.
- Kember, D and Gow, L. "Orientations to teaching and their effects on the quality of student learning", *Journal of Higher Education*, 65(1), 1994, 58-74.
- Kember, D. "A reconceptualisation into research into university academics' conceptions of teaching", *Learning and Instruction*, 7(3), 1997, 255-275.
- Leveson, L. "The things that count: negative perceptions of the teaching environment among university academics", *International Journal of Educational Management*, 18(6), 2004, 368-73.
- Leveson, L. More than numbers: how accounting academics experience their work, Unpublished PhD thesis, *University of Sydney*, Australia, 2006.

- Lucas, U. "Contradictions and uncertainties: lecturers' conceptions of teaching introductory accounting", *British Accounting Review*, 34, 2002, 183-203.
- Martin, E. and Balla, M., "Conceptions of teaching and implications for learning", *Research and Development in Higher Education*, 13, 1991, 298-304.
- Marton, F. and Booth, S. *Learning and Awareness*, Mawah, Lawrence Erlbaum Associates, New Jersey, 1997.
- Marton, F. "Phenomenography - A research approach to investigating different understandings of reality", *Journal of Thought*, 21(3), 1986, 28-49.
- Mathews, R. (Chair) *Accounting in Higher Education*, Canberra: Report on the Review of the Accounting Discipline in Higher Education 1, Australian Government Publishing Services, 1009.
- Mladenovic, R. "An investigation into ways of challenging introductory accounting students' negative perceptions of accounting", *Accounting Education: an international journal* 9(2), 2001, 135-55.
- Patrick, K. A. *Teaching and Learning: the construction of an object of study*. 1-279. Unpublished PhD thesis, University of Melbourne, Australia, 1998.
- Prosser, M. & Trigwell, K. "Relations between perceptions of the teaching environment and approaches to teaching", *Journal of Educational Psychology*, 67, 1997, 25-35.
- Prosser, M. and Trigwell, K. *Understanding Learning and Teaching: The Experience in Higher Education*, The Society for Research into Higher Education and Open University Press: Buckingham, 1999.
- Ramsden, P. *Learning to Teach in Higher Education*. Routledge: London, 1992/2003.
- Rovio-Johansson, A. *Being Good at Teaching: Exploring different ways of handling the same subject in Higher Education*, *Goteborg Studies in Educational Sciences* 140, Goteborg, 1999.
- Säljö, R. *Learning in educational settings: methods of enquiry*, in P. Ramsden, (Ed.) *Improving Learning: new perspectives*, 32-48. London: Kogan Page Ltd, 1988.
- Samuelowicz, K. and Bain, J. "Revisiting academics' beliefs about teaching and learning", *Higher Education*, 41, 2001, 299-325
- Sandberg, J. "Are phenomenographic results reliable?" *Higher Education Research and Development*, 16(2), 1997, 203-212.
- Shute, G. "Accounting Students and Abstract Reasoning: an Exploratory Study", *American*

*Accounting Association*, Sarasota, FL, 1979.

Tempone, I. "Variation in student learning in Accounting", Unpublished PhD thesis. *Swinburne University*; Melbourne, Australia, 2001.

Trigwell, K., Prosser, M., and Taylor, P. "Qualitative differences in approaches to teaching first year university science", *Higher Education*, 27, 1994, 75-84.

Trigwell, K. and Prosser, M. "Changing approaches to teaching: a relational perspective", *Studies in Higher Education*, 21(3), 1996, 275-84.

Trigwell, K., Prosser, M. and Waterhouse, F. "Relations between teachers' approaches to teaching and students' approaches learning: a relational perspective", *Higher Education* , 37, 1999, 57-70.

Van Rossum, E. J. and Schenk, S. M. "The relationship between learning conception, study strategy and learning outcome", *British Journal of Educational Psychology* , 54, 1984, 73-83.

## QUALITATIVE CHARACTERISTICS OF FINANCIAL REPORTING: THE CHANGING PROFESSION

**Dr. John Chibaya Mbuya and Dr. Amer Sultan Alhajri**

### ABSTRACT

Financial reporting is a means of communicating decision-useful information. The objective of financial reporting is to provide information that is useful to present and potential investors and creditors and others in making investment, credit and similar resource allocation decisions. This objective pertains to all of financial reporting, not just financial statements (IASB, 2006). The purpose of the paper is to assess the latest developments regarding the qualitative characteristics (QC's) of financial reporting. The QC's discussed in this paper distinguish more useful information from less useful information. Being the qualities to be sought in making decisions about financial reporting the QC's of the following pronouncements are evaluated and compared in this paper: (1) the QC's of financial reporting according to the International Accounting Standard Board (IASB) Framework Discussion Paper of 2006; (2) the QC's of the IASB's Management Commentary Discussion Paper of 2005; and (3) the principles ensuring quality of information in the Sustainability Reporting Framework of the Global Reporting Initiatives (GRI) G3 of 2006. Future developments relating to financial reporting might have an impact on setting the QC's for financial reporting, including management commentary, are also investigated. This paper demonstrates that the debate is far from over.

### KEYWORDS

*Conceptual framework, Decision-usefulness, Financial reporting, Management commentary, Principles ensuring quality of sustainability, Qualitative characteristics, Information, Sustainability Reporting Framework*

## 1. INTRODUCTION

Financial reporting is not static; it evolves over time. This evolution is evident when one looks at the content of the discussion paper *Preliminary Views on an Improved Conceptual Framework for Financial Reporting: The Objective of Financial Reporting and Qualitative Characteristics of Decision-useful Financial Reporting Information* (hereafter Framework Discussion Paper), issued by the International Accounting Standards Board (hereafter IASB) in July 2006 (IASB, 2006).

The Conceptual Framework for financial reporting establishes the concepts that underlie financial reporting (IASB, 2006: par QB1). Phase A of the Framework Discussion Paper focuses on the objective of financial reporting, the user groups of financial reporting and the qualitative characteristics (hereafter QCs) of decision-useful financial reporting information. QCs are the qualities to be sought in making decisions about financial reporting.

During the last decade, the importance of narrative reporting in financial reporting has increased significantly. This is due to the rapid pace of change in business, which means the past performance has become a less useful guide to future prospects. More forward-looking financial information is needed.

The issuing of the *Discussion Paper on Management Commentary* (hereafter MC Discussion Paper) by the IASB in 2005 (IASB, 2005) formally highlighted the debate about how narratives (including forward-looking financial information) should support the financial information provided in financial statements. In this Discussion Paper the QCs that underpin the narrative information in management commentary (hereafter MC) are addressed together with the objectives and principles of MC.

The objective of financial reporting is to provide decision-useful information to different user groups. Thus, the objective stems largely from the needs and interests of those users and pertains to all of financial reporting. Corporate annual reports include financial statements, other financial information and non-financial information e.g., description of an entity's sustainability impact (IASB, 2006).

Sustainability reporting is a growth area through which entities communicate information on their environmental impact and social performances that are useful to relevant user groups. To improve the quality of sustainability reporting the Global Reporting Initiative (hereafter GRI) published its third generation (hereafter G3) Reporting Guidelines. Included in these guidelines is "Guidance to ensure quality of information", which are to be used in the same way as the QCs of the two IASB discussion papers.

This paper first discusses the need for a conceptual framework within the objectives of financial reporting and the applicable users of financial reports. As a part of financial reporting, but sitting "alongside" the financial statements, MC is addressed next. Once again the

need for MC is looked at together with the objectives and principles of MC.

The two necessary QCs and the four enhancing QCs of financial reporting, according to the Framework Discussion Paper (IASB, 2006), and recent developments in debating the QCs, are discussed and assessed. This paper also focuses on the concept of applying the “sequential approach” to the QCs before some future developments that might have an impact on these proposed QCs are discussed.

Against this background the QCs of MC are also discussed and assessed. Attention is once again given to future developments that could influence the QCs of Management Commentary.

No longer can the economic bottom line be the only reporting focus of entities. Sustainability reporting is becoming more and more important. Within the need for guidance on reporting on sustainability issues the structure of the G3 Guidelines is explained. The “Principles to ensure quality of reported sustainability information”, a component of the “How to report” part of the G3 Guidelines, are addressed next.

Then, lastly, to get some kind of closure on the different sets of “QCs”, the QCs from the IASB pronouncements are compared and analysed against those of the GRI G3 Guidelines. Issues that follow from this comparison and that might affect the way forward are also addressed.

## **2. RESEARCH OBJECTIVE AND RESEARCH DECISION**

In 2006 the IASB, in par QC 47 of the Framework Discussion Paper, also stated that QCs are complementary concepts in achieving decision-useful financial reporting information: their application, in concert, should maximize the usefulness of financial reports. The purpose of the QCs (and the rest of the conceptual framework) is to identify the ideals towards which to strive (IASB, 2006: par QC47).

In setting the QCs for the MC Discussion Paper (IASB, 2005: par 61) the IASB started by considering the QCs of the existing Framework. They came up with similar, but not identical, ones, and preferred to use different terms for some of the QCs taken from the existing Framework. In the Sustainability reporting arena some related development also took place.

Sustainability reporting is still a relatively new and young discipline. The publication of the G3 Guidelines aims to make the guidelines in the GRI Sustainability Reporting Framework more useful for the financial reporting community and contains “Guidance to ensure quality of information” (GRI, 2006a). This “Guidance to ensure quality of information” is to be used to maximize the decision-usefulness of financial reports in the same way as the QCs of the two discussion papers (discussed above) are used.

It is in this framework of different sets of QCs that this paper strives to make a contribution. The concept of using different QCs for financial reporting, including MC and Sustainability Reporting, across the globe is in a development phase and has not yet been resolved. The IASB has specifically stated in the Framework Discussion Paper that issues relating to MC will only be addressed in a later phase (IASB, 2006: par BC1.43) of its Framework project. The IASB also stated in the MC Discussion Paper (2005: par 30) that MC should not be seen as a replacement for other forms of reporting, for example reporting on sustainability issues.

Therefore, the research objective of this paper is to assess the latest developments in determining the most suitable QCs of decision-useful financial reporting information. In achieving the stated objective this paper addresses the QCs of the Framework Discussion Paper, those of the MC Discussion Paper and to a limited extent those that provide guidance on Sustainability Reporting.

This paper therefore engaged in explanatory research that involved comparing and assessing the QCs of the two identified discussion papers, the MC and the Framework Discussion Papers, and those in G3 of the GRI Guidelines in order to determine their specific contribution in achieving decision-useful information for a wider stakeholder group.

Limited published academic research on the two relative young IASB discussion papers referred to above is available. Therefore, the secondary research data used in this paper, to compare the identified discussion papers, is the 116 comment letters received by the IASB in 2006 on the MC Discussion Paper and the 2007 IASB's summary of the 179 comment letters received on the Framework Discussion Paper (IASB Information for Observers 2007b: Agenda Paper 3A). These comment letters represent the views of different role players across the globe and provide important input to the IASB for its re-deliberations when setting the QCs of the relevant project. This paper will focus on the comments addressing the QCs of financial reporting and those on Management Commentary and its influence on the original set of QCs of the Framework Discussion Paper.

The conceptual framework for financial reporting, being a coherent system of concepts that flow from an objective, seems to be the logic starting point for discussions to follow.

### **3. PRONOUNCEMENTS OF THE IASB**

#### **3.1 The conceptual frameworks of the IASB**

##### **3.1.1 Need for a conceptual framework**

Almost 30 years ago the Financial Accounting Standard Board (FASB) of the USA stated in the first line of its Concept Statement No 1 (hereafter CON 1) that "Financial reporting is not an end in itself, but is intended to provide information that is useful in making business and economic decisions" (Orenstein, 2005). CON 1 forms the underpinning for the FASB's

Conceptual Framework, and also for the Conceptual Framework of the IASB.

In 1990 the IASB published its “Framework for the preparation and presentation of financial statements” (hereafter existing Framework) (2007) and, more recently, in 2006, Phase A of the conceptual framework was issued by both the IASB and the FASB (hereafter the Boards) as a Discussion Paper entitled *Preliminary views on an improved conceptual framework for financial reporting: The objective of financial reporting and qualitative characteristics of decision-useful financial reporting information* (IASB, 2006) (Framework Discussion Paper). This project is not included in the Memorandum of Understanding (hereafter MoU) between the IASB and FASB but was described in the MoU. Compared to the FASB the IASB places its conceptual framework “higher in the hierarchy” of accounting standards, and expressly designed the conceptual framework not only for its own use, but also to be used by preparers and users of financial reports (Orenstein, 2005).

Chapter 2 of the Framework Discussion Paper focuses on the QCs of financial information and flows logically from the objective. Chapter 1 of the same document not only deals with the objective of financial reporting and the users of financial reports but also lays the foundation of the conceptual framework. This objective pertains to financial reporting as a whole, and not just to financial statements.

### **3.1.2 The objective of financial reporting and the users of financial reports**

According to paragraph OB2 of the Framework Discussion Paper, the objective of general purpose external financial reporting is to provide information that is useful to present and potential in making decisions (IASB, 2006 italics added)

- ▶ investors,
- ▶ creditors and
- ▶ others
- ▶ investment,
- ▶ credit and
- ▶ similar resource allocation

In comparing the objective stated above with the objective of the existing Framework it is important not only to notice the differences between the two objectives but also to take note of the significance thereof. These differences are presented in Figure I below.

**Figure 1: The conceptual frameworks compared**

Conceptual Frameworks		
Issues	Framework Discussion paper (2006) (Proposed one) (OB2 & QC4)	Framework of 1990 (2007) (Existing one) (par .12 & .25)
Deals with	External reporting	Nothing stated
Scope of framework	Financial reporting	Financial statements
Categories of users	Present and potential	Nothing stated
Users listed	Investors, creditors and others	Wide range of users
Knowledge of users	Will have a reasonable knowledge	Assumed to have a reasonable knowledge
Knowledge of users on what	Business and economic activities	Business and economic activities and accounting
Ability to read a financial report	Will be able to	Nothing stated
Reasonable diligence applied to	Will review and analyse the information with ...	Willingness to study the information with ...
Decisions to be made	Investment, credit and similar resource allocation decisions	Economic decisions

(Source: The author)

It is worth noting that the conceptual framework proposed in the Framework Discussion Paper will apply not only to “financial statements” but to a much wider concept of financial information – that of “financial reporting”.

More focus is also placed on the users by identifying the user-groups, the abilities of users and also on the kind of decisions they will be making. Present and potential investors, being the primary user group, especially investors, may have widely differing degrees of knowledge of business and economic activities. Singleton-Green (2006) warns that financial reporting can potentially affects users’ decisions in unfortunate and unintended ways. The example he gives is that managers can be driven to take decisions on what to report because these specific decisions will give the best financial reporting numbers and not because they make

economic sense. Some of the respondents to the Framework Discussion Paper commented that “understandability” (as a qualitative characteristic) should relate to the “common user and accordingly the Boards should place less emphasis on sophisticated users when assessing understandability” (IASB Information for Observers, 2007b: Agenda paper 3A par 66.).

The users of the proposed conceptual framework “... *will have* a reasonable knowledge of ...” – as compared to the existing framework, which specifies that users were only “... *assumed to have* a reasonable knowledge of ...”. It is also no longer expected of users to have a reasonable knowledge of *accounting*. Is this to be seen as a move away from transparency in financial reporting through the specific words used, perhaps without realising it (Ewer, 2007) or does it have something to do with the categories of users and the specified users? And what influence should the specified user groups have on the QCs of decision-useful information, and what if the users change? “Uncertainty of investors about the reporting objective of managers” (Einhorn, 2007) might also, once solved, change the QCs.

To bridge the gap between what financial statements are able to achieve and the objectives of financial reporting it may be necessary for the financial reports to include additional information, like MC. MC should sit “alongside” the financial statements (including the notes accompanying the financial statements) and should “not be placed within” the financial statements (IASB, 2005: par 6 and 23).

The Framework Discussion Paper states specifically that financial reporting should include management’s explanations and other information that is needed to understand the financial information (IASB, 2006: par OB26 and OB28), and that the objectives of financial reporting, as discussed above, also include assessing management stewardship as well as how well management has discharged its stewardship responsibilities. All of this leads to an even bigger emphasis on the “decision-usefulness” of the wider concept of financial reporting. The role that MC could play in providing all this additional information is now discussed.

## **3.2 Management Commentary of the IASB**

### **3.2.1 The need for Management Commentary**

Although the IASB’s existing Framework focuses solely on financial statements and specifically states that reports by directors, statements by the chairman, discussion and analysis by management and similar items are excluded from financial statements (IASB, 2007: par 7), the Preface to International Financial Reporting Standards (IASB, 2007: par 7) states that “other financial reporting comprises information provided outside financial statements that assists in the interpretation of a complete set of financial statements to improve users’ ability to make efficient economic decisions”. The IASB has, thus, always confirmed that MC is a tool to assist the objective of financial reporting. The Standards Advisory Council of the IASB also stressed the need to promote narrative reporting as both complementary to finan-

cial statements and necessary to the production of a high quality financial reporting package (IASB Information for Observers, 2007d: Agenda Paper 5D). Overwhelming support has been given by the respondents in the comment letters to the IASB to the position that MC should be regarded as an integral part of financial reports. Overall, this support was based on the assumption that financial reports are being seen as wider than the financial statement itself and that MC should be seen as a supplement to financial statements. Those respondents who did not support this did so due to concerns regarding possible audit requirements for MC. Whereas the Framework Discussion Paper was issued by both Boards as part of the MoU between the two Boards, the MC Discussion Paper was issued by the IASB only and does not form part of the MoU. The IASB decided on its 12 December 2007 meeting to add the MC project to its active agenda (IASB Update, 2007c).

The premise for adding a project on MC to the active agenda is that the narrative reports, which accompanies the financial statements, is a necessary component of a general purpose financial report. The need for this narrative report stems from the increased complexity of both the global business environment and the transactions that underpin the financial statements (IASB Information for Observers, 2007d: Agenda Paper 5D).

The Framework Discussion Paper (IASB, 2006: par OB16) confirms that financial statements are a central feature of financial reporting. The objective of financial reporting pertains to all of financial reporting, not just financial statements, because some types of financial and non-financial information may be best communicated by means other than traditional financial statements, like in MC.

### **3.2.2 Objective and principles of Management Commentary**

#### **The objective of MC reads as follows:**

“Management Commentary is information that accompanies financial statements as part of an entity’s reporting. It explains the main trends and factors underlying the development, performance and position of the entity’s business during the period covered by the financial statements. It also explains the main trends and factors that are likely to affect the entity’s future development, performance and position.” (IASB, 2005: par 19)

The MC Discussion Paper (IASB, 2005: par 32-35) suggests that the objective of MC, which has three elements in it, should be to provide information to help investors to: assess

- ▶ the financial statements in the context of the environment in which the entity operates;
- ▶ what management views as the most important issues facing the entity and how it intends to manage those issues; and
- ▶ the strategies adopted by the entity and the likelihood that those strategies will be

successful; and

- ▶ interpret the related financial statements.

This objective is in line with the thinking of the Boards that the proposed objective of financial reporting should be broad enough to encompass information that might eventually be provided within financial reporting (like MC) but sits outside the financial statements as discussed earlier.

“Other financial reporting comprises information provided outside financial statements that assists in the interpretation of a complete set of financial statements or improves users’ ability to make economic decisions” (IASB, Preface to International Financial Reporting Standards, 2007: par 7).

The purpose of MC, being part of “other financial reporting” and not part of the financial statements, is not complicated: Put simply, MC provides context to the financial statements. MC just focuses on another objective when management is putting context to the financial statements in another report. MC is also part of “other financial reporting”.

- ▶ MC should therefore incorporate the following three principles:
- ▶ supplement (additional information) and complement financial statements information (by including financial and non-financial information not reported in the financial statements but consistent with the financial statements);
- ▶ be through the eyes of management; and
- ▶ have an orientation to the future (IASB, 2005: par A8-A18).

These three principles put emphasis on the close interrelationship between the financial statements and MC and underline the importance of providing an analysis through the eyes of management. Major support has been given by auditing firms (Deloitte, 2006; KPMG, 2006 and PWC 2006), local standard setting institutions (CICA, 2006; DRSC, 2006; ICAEW, 2006 and SAICA, 2006) and other institutions (Basel Committee of Banking Supervision, 2006; CIMA, 2006 and IOSCO, 2006) to the objective and the three principles of MC. Many specifically applauded the notion of “an orientation to the future”. To achieve this notion, financial reporting should provide decision-useful financial information to the users, both about the past and the future, based on the QCs of financial reporting.

## **4. THE QUALITATIVE CHARACTERISTICS OF THE FRAMEWORK DISCUSSION PAPER AND THAT OF THE MC DISCUSSION PAPER**

### **4.1 The qualitative characteristic of the Framework Discussion Paper**

### 4.1.1 What are qualitative characteristics?

“QC’s are the attributes that make information provided in financial statements useful to users” (IASB, Framework for the preparation and presentation of financial statements, 2007: par 24). The qualities of decision-useful financial reporting information are relevance, faithful representation (used to be reliability), comparability and understandability. Because these QCs distinguish “more useful” information from “less useful” information they are the qualities to be sought in making decisions about financial reporting (IASB, 2006: par QC1, QC7 and QC42). Since setting these four QCs some changes have taken place over the past two years.

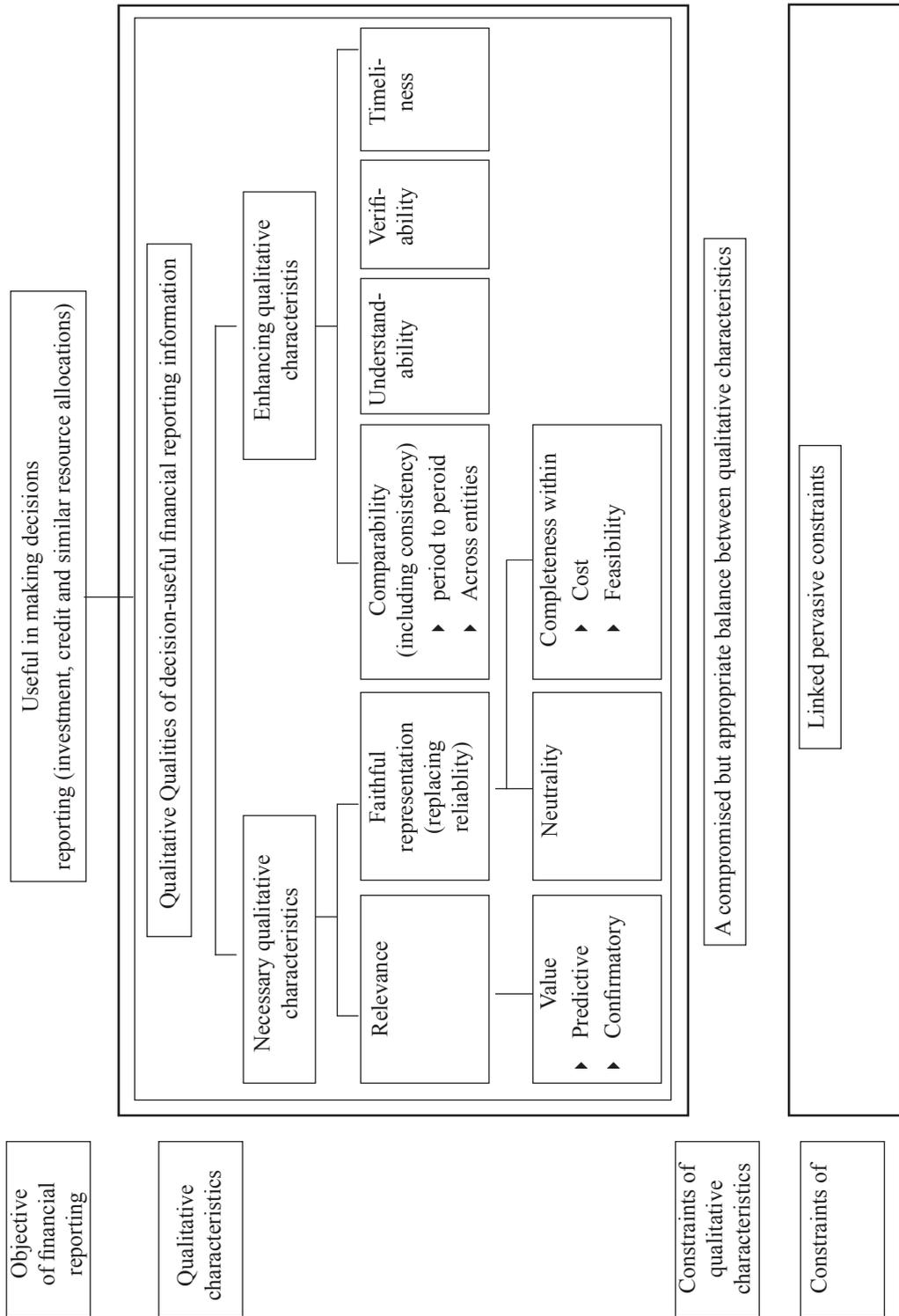
### 4.1.2 The qualitative characteristics of financial reporting

The 179 comments letters received by the IASB relating to the QCs were summarised and presented as “Information to Observers” for the IASB meeting on 20 February 2007 in London as Agenda Paper 3A (IASB, 2007b). Another document on the same topic was prepared for the IASB’s meeting of 18 April 2007 (also in London) as Agenda Paper 5 (IASB, 2007c).

Of the comment letters received by the IASB 18% were from the investor/analyst group, followed by preparers (16%) and professional organisations (15%). The highest number of comment letters received from a specific region were from Europe (49%) followed by North America (24%) (IASB Information for Observers, 2007a: Agenda paper 3A par 2 and 3). The IASB used these comments in their re-deliberation and decided to change some of the original QCs put forward in the Framework Discussion Paper, for example to describe some QCs as necessary QCs and some as enhancing QCs. The IASB still has to clarify the distinction between necessary QCs and those described as enhancing QCs (IASB Update, 2007a).

The two necessary QCs and the four enhancing QCs and the constraints of these QCs, together with the objective of financial reporting and the two pervasive constraints of financial reporting, are best understood when presented schematically. The author is also aware of the IASB’s decision not to include a chart explaining the relationship among the QCs and the constraints of financial reporting (IASB, 2006: par BC2.61) but to search for a better way to do so. The aim of Figure II below is to illustrate how standard-setters in setting Accounting Standards and preparers of financial reports might apply the QCs in making decisions about financial reporting issues within the objective of providing decision-useful information. Figure II only serves as a means to facilitate the discussion that follows.

**Figure 2: Framework Discussion paper: Qualitative characteristics**



(Source : the author)

Each QC makes its own distinct contribution to the decision-usefulness of financial reporting. Relevance and faithful representation are the two necessary QCs while comparability, understandability, verifiability and timeliness are seen as the four enhancing QCs.

**Timeliness** should no longer be seen as only a component of **relevance** (IASB Information for Observers, 2007b: Agenda Paper 3A). The IASB has recently decided that timeliness should instead tentatively be promoted to a QC and described as an enhancing QC (IASB Update, 2007b).

**Faithful representation** was by far the most frequently cited necessary qualitative characteristic in comment letters. The comments from the 73% of respondents who commented unfavourably on the explanation of faithful representation and the components thereof can be summarised as follows:

- ▶ Objection to the replacement of *reliability* with *faithful representation*;
- ▶ Not agreeing that *faithful representation* means the same as *reliability*;
- ▶ Objection to the inclusion of *verifiability* as a component of *faithful representation*; and
- ▶ Not agreeing with the description of indirect verification and the relation to substance over form; and
- ▶ Not agreeing that *faithful representation* encompasses ensuring that financial reports represent the substance of an economic phenomenon rather than solely its legal form.

Replacing “reliability” with “faithful representation” is seen as a “softer notion.” Anonymous (2006) also thinks it would be better if the IASB could clarify what is meant by “reliability”, rather than remove it. Now that reliability has disappeared “could it be argued that if information has been verified it ought to be reliable?” was the concern raised by Singleton-Green (2006).

Financial reporting (being more than just financial statements that tend to focus on the past) are more explicitly forward-looking and accordingly users will have to recognise that there will be differences in the reliability of the content. Singleton-Green (2006) also commented that the QCs of financial reporting could be “applied imaginatively to the rather different problems of forward-looking information”. The movement towards fair value accounting will also make it more difficult to truly say that those numbers are verifiable.

Deloitte (2006b) believes that reliability is an essential attribute of financial information and is an additional and separate characteristic that should not be subsumed in the attributes of faithful representation and verifiability. The IASB has now decided that **verifiability**

should tentatively be separated from faithful representation and described as an enhancing QC (IASB Update, 2007a). This view is also supported by Singleton-Green (2006).

Although the term “**understandability**” was well accepted as an enhancing QC some respondents commented that there is a lack of consistency between the primary user group identified in the Framework Discussion Paper and the discussion of understandability as a QC also in the Framework Discussion Paper (IASB Information for Observers, 2007c: Agenda paper 5 par 24.). In explaining the term “understandability” a reasonable knowledge of “financial accounting” is expected of users. Surprisingly, reference is made to a “financial accounting knowledge” (IASB, 2006: par QC39 and QC 4) when the attributes of the users of financial reports (as explained in Figure I earlier) are discussed. This again raises the question of understandable to whom? Many of the primary users of financial reports actually have very little knowledge of financial accounting requirements. The Framework Discussion Paper should draw a clear link between the objective (and the users) of financial reporting and the rest of the Framework (including the QCs). A change in the user group or their attributes (being more common and less sophisticated users) could influence the QC and vice versa.

It is clear that some “reshuffling” (Singleton-Green, 2006) of the QCs has taken place and it could be that we will see some more “reshuffling” in future. Chapters 1 and 2 of the Framework Discussion Paper are to be issued as an Exposure Draft in the first quarter of 2008. Neither of the chapters has been finalised as yet.

#### **4.1.3 Applying a sequential approach to the qualitative characteristics**

The current conceptual framework projects of the two Boards are moving towards a sequential approach when applying the QCs, keeping in mind that each QC, whether classified as a necessary or an enhancing characteristic, makes its own distinct contribution to the decision-usefulness of financial reporting information. The discussion in QC43 to QC47 in the Framework Discussion Paper (IASB, 2006) not only considers the attributes and contributions of the QCs but also explains the relationships amongst them. The starting point is that investors, creditors and other users of financial reports want to understand the economic phenomena that are pertinent to their decisions.

On the question by the IASB relating to how the QCs should relate to each other, only 4% of the respondents commented favourably on the sequential order of the QCs, while 21% commented unfavourably (IASB Information for Observers, 2007b: Agenda Paper 3A). Those who commented unfavourably want the Boards to further clarify that sequential ordering does not imply that there is a hierarchy of characteristics. Other felt that the two necessary QCs should be considered concurrently and not in succession. Relevance should be considered first because it is concerned with the connection between economic phenomena and will identify which economic phenomena should be depicted in financial reports. In

logical order, the other necessary QC to be applied next is faithful representation. This will determine which depiction (words and numbers) of those phenomena provide the best correspondence with their representation. Orenstein (2005), Singleton-Green (2006) and Bennet, Bradbury and Prangnell (2006) support the sequential approach of the IASB.

Christensen and Demski (2007) recognise that the conceptual framework offers an approach to understanding and managing reporting choices but do not agree with the “unrelenting focus” on relevance and reliability (now faithful representation) to the exclusion of interests or transaction motives. They also argue that the focus on QCs precludes a focus on first-order economic fundamentals. Deloitte (2006b) also warns that a depiction that provides faithful representation of an economic phenomenon is not useful for an investor if that depiction has no relevance to the investor’s decision. Relevance and faithful representation work in concert to make financial reporting information useful when making investment, credit and similar resource allocation decisions.

The enhancing QCs of comparability and understandability should be considered next (IASB, 2006: par QC46) followed by the now tentatively moved enhancing QCs of verifiability and timeliness. Comparability enhances understandability and is needed to be explicitly considered to enhance the decision-usefulness of relevant and faithfully represented information, like economic events and circumstances that then change. The QCs are complementary concepts in achieving decision-useful financial reporting information: their application in concert should maximise the usefulness of financial reports (IASB, 2006: par QC42-QC47, par S8 and par BC2.59).

In practice, a balancing, or trade-off, between QCs is often necessary. There are also some other aspects that could have an impact on determining the QCs of financial reporting.

#### **4.1.4 Future developments that could have an impact on the qualitative characteristics of financial reporting**

There is a commonly held view that the FASB’s standards are rules-based and the IASB’s standards are principle-based. Bennett et al (2006) conclude that a relatively more principles-based standards regime requires professional judgement at both the transaction level (substance over form) and at the financial statement level. They also suggested that **any IASB and FASB convergence** will require agreement on the weightings given to QCs. This whole approach might still influence the setting of the QCs of financial reporting.

Orenstein (2005) focuses on the one key difference between the FASB’s and the IASB’s conceptual framework. Compared to the FASB’s conceptual framework the IASB’s conceptual framework is designed not only for its own use but also for preparers and users of financial statements. Determining the place of a **conceptual framework in the “hierarchy” of accounting pronouncements** still lies in the future. This could also influence the QCs of the conceptual framework.

There was overwhelming disagreement with the IASB's single overriding objective of decision-usefulness of financial reporting (IASB Information for Observers, 2007b: Agenda Paper 3A par 43). These respondents included user groups, a regulator, standard-setters, accounting firms and preparers. They felt **stewardship** should be defined as a separate objective of financial reporting and that stewardship should not be subsumed within the decision-usefulness objective. This was also the alternative view of two Board Members. Lennard (2007) argues that stewardship and decision-usefulness are parallel objectives with different emphases. Stewardship contributes an important dimension to financial reporting in providing information that provides a foundation for a constructive dialogue between management and shareholders. Re-deliberation on "stewardship" by the Boards will only take place at future meetings (IASB Update, 2007b) when they will also discuss the respondents' comments on stewardship. Depending on the outcome of these re-deliberations it might be necessary to have a re-look at the QCs.

Deloitte (2006b) feels it would be helpful if the conceptual framework could provide additional clarification on how **uncertainty** about financial information should be dealt with in the financial statements and what effects, if any, it has on determining the QCs. If not resolved in Phase A, it could be discussed in later phases of the conceptual framework project as the Boards are conducting the conceptual framework in eight phases.

**The other phases of the conceptual framework project that could also affect the QCs are:**

- ▶ Phase B *Elements and recognition*: the components of the definitions of the elements and the recognition criteria as such might influence the QCs;
- ▶ Phase C *Measurement*: the purpose of this phase is to select a set of measurement bases that addresses comprehensively both initial and subsequent measurement. It should satisfy the objective and QCs of financial reporting. Applying neutrality in determining an appropriate fair value could be difficult and could also lead to concerns regarding verifiability (Deloitte, 2006b). Measurement bases will be tested against the QCs and this might lead to a re-assessment of the QCs. Fair value is not defined as a measurement bases in the frameworks.
- ▶ Phase D *Reporting entity*: The concept of a "reporting entity" will be addressed in this phase; Paragraph OB10 spells out that "... the financial reports reflect the perspective of the entity rather than only the perspective of the entity's owners..." (IASB, 2006) but the debate on an "entity's perspective" or "a proprietary view" will only take place in Phase D. The statement in OB10 might change as a result of future deliberations (Deloitte, 2006b) and so could the QCs.
- ▶ Phase E *Presentation and disclosure*: This phase is still inactive but when the bound-

aries of presentation and disclosure are deliberated could also influence the existing QCs.

- ▶ Phase F *Purpose and status*: The Boards will consider the authoritative status of each of their frameworks and also whether one or both Boards should change the status of its framework. This will only be done once the conceptual framework project is substantially complete. McGregor and Street (2007) see this as a “controversial issue”. They also believe that including the framework in the GAAP hierarchy is “important because it makes the body of GAAP much more robust”. This debate could also include having another look at the QCs. If no accounting standard exists, the conceptual framework should be used to find a solution for an accounting issue – inter alia using the QCs.
- ▶ Phase G *Application to not-for-profit entities*: Considerations of not-for-profit entity issues are deferred until the first four phases of the conceptual framework project are substantially complete. McGregor and Street (2007) identify two issues of current contention: 1) the timing of the application of the revised frameworks to not-for-profit entities in the private sector and 2) whether the revised framework should cover not-for-profit entities in the public sector. A sector neutral framework could be the answer. Could the QCs of the private sector be used for the public sector? Only future development in this regard will answer this question.
- ▶ Phase H *Any remaining issue* (if any): Not determined yet.

## 4.2. The qualitative characteristics of the MC Discussion Paper

### 4.2.1. The source of these qualitative characteristics

The Frameworks (existing and proposed) themselves, as discussed earlier, exclude MC from their scope but recognise that MC supplements and complements the financial statements. It also bridges the gap between financial accounting requirements and economic events.

QCs distinguish more useful information from less useful information. Therefore they are the qualities to be sought in making decisions about financial reporting (IASB, 2006: QC1) including those on financial statements and on MC. The MC project team of the IASB’s starting point in setting the QCs for MC was to see if the ones in the existing IASB Framework are suitable. Their initial proposal was to use the QCs of the Framework as the QCs for MC. The reasoning behind that was if MC is intended to help investors understand the financial statements, the project team expects MC to meet, as far as possible, qualitative standards similar to those applicable to financial statements (IASB, 2005: par 61). This was met with concern by the IASB.

The MC project team in the end concluded “that *understandability, relevance, support-*

*ability, balance and comparability overtime* should be the QCs that are applicable in the preparation of MC” (IASB, 2005: par 58-61). MC that exhibits all of the QCs above is most likely to meet the needs of the investors.

#### 4.2.2 The qualitative characteristics of Management Commentary

The IASB decided that *understandability* and *relevance* should be applicable in preparing MC but prefer using the terms *supportability, balance and comparability over time* instead of the existing Framework’s terms of *reliability* (now called faithful representation) and *comparability* (IASB, 2005: par 61). The use of different terms should not be seen as a movement away from the QCs but as the application of the same concept within the objectives of Management Commentary, as discussed earlier. For example, information is supportable if it faithfully represents factually based strategies, plans and the risk analysis. Information not presented even-handedly – dealing with both good and bad aspects (balanced) – would not enhance supportability.

When the conceptual framework uses *comparability* it included both *comparability over time* as well as *comparability across entities*. MC elected to use only *comparability over time*. This is because MC in particular is designed to reflect the perspectives of management on the specific entity and the circumstances of the specific entity (IASB, 2005: par 82-89).

It is the responsibility of management to consider what information should be included in MC. In determining the content of MC the objective is quality rather than quantity (SAICA, 2006). MC should also be consistent with the applicable financial statements. Following the QCs of the MC Discussion Paper should help not only to achieve this but also to increase the decision-usefulness of financial reporting.

Question 5 of the MC Discussion Paper addressed the five QCs applicable to MC. Eighty-six percent of the respondents who answered this question, like auditing firms (Deloitte, 2006a; KPMG, 2006 and PWC, 2006), local standard setting institutions (CICA, 2006; DASB, 2006; ICAEW, 2006) and CIMA (2006) supported the QCs as set out in the MC Discussion Paper. ICAEW (2006) welcomed the importance of an even-handed approach to this type of reporting.

The majority of those (SAICA, 2006; KAA, 2006; SWG, 2006; BASEL COMMITTEE OF BANKING SUPERVISION, 2006) that did not support the five QCs of the MC Discussion Paper felt the terminology used should be consistent with the ones used in the existing Framework. Introducing new QCs for one particular document might lead to terminology confusion but will not give rise to advantages in either the form or in the content of MC.

The non-supporters felt the terms “supportability” and “balance” should be “faithful representation (reliability)” again and “comparability over time” should be “comparability over time and across entities”. The Institut für Rechnungslegung accepted that the different nature

of information provided by MC would result in a different perception of reliability (faithful representation) (IASB Information for Observers, 2007a: Agenda Paper 11C). CEBS (2006) attached particular importance to the concept of reliability (faithful representation), which is a key aspect of their supervisory approach when it comes to financial information.

The BASEL COMMITTEE ON BANKING SUPERVISION (2006) says that implementation of this terminology/terms should be straightforward. None of the respondents suggested any new QCs but some noted that it is essential to keep the discussion in line with the ongoing work on the Framework.

#### **4.2.3 Future developments that could have an impact on the qualitative characteristics of Management Commentary.**

Some respondents, as discussed earlier, want the QCs of MC to be the same as the **QCs of the proposed framework**. Once the QCs of the proposed framework are finalised, it might be necessary to re-assess the QCs of MC.

Other issues from **other phases of the conceptual framework project**, e.g. the boundaries of financial reporting and the components of financial reports in the reporting entity phase (Phase D) and presentation and disclosure issues (Phase E) could also have an influence on setting the QCs of MC. The ASB of Japan (2006) mentioned that once the scope of notes to the financial statements is determined, disclosure items which are different in nature would automatically fall within MC.

**Issues from the MC project itself**, like what constitutes financial reporting and who are the primary users of financial reports, could also have an impact on the QCs of MC. Likewise, the finalisation of the objectives and principles as well as the essential content of MC could also have an impact on the existing QCs. The MC project team suggested to the Boards that they consider whether the some QCs may be applied to all of financial reporting, or if there should be separate QCs for financial statements and other QCs for other reports within financial reporting (IASB Information for Observers, 2007a, Agenda paper 3A par 73).

As discussed earlier, the IASB has brought MC onto its active agenda and is working towards the issuing of a **guidance document (not a standard) on MC**. While this kind of pronouncement, being non-monetary guidance, was also suggested by CESR (2006) and IOSCO (2006), they also want to see a dialogue between the securities regulators and the IASB. This dialogue should minimise the risk that any guidance issued by the IASB will conflict with the standards developed by the regulators (IASB Information for Observers, 2007a: Agenda paper 11A). If consultation is going to take place between the IASB and these two and other securities regulators, it could also influence the finalisation of the QCs of MC.

If MC is considered to be an integral part of financial reporting, the **audit of MC** poses significant challenges compared to an audit of financial statements. Forward-looking infor-

mation lacks the same degree of objectivity of financial statement information (IASB Information for Observers, 2007a: Agenda paper 11A).

## **5. THE QUALITATIVE CHARACTERISTICS OF SUSTAINABILITY REPORTING**

### **5.1. Need for a sustainability reporting framework**

Until recently, the economic bottom line was the only barometer for entities' success and was easy to understand. As discussed earlier, ample guidance on how to report in financial statements also exists. Financial statements are a central feature of financial reporting. The objective of financial reporting of the Framework Discussion Paper pertains to all of financial reporting, including descriptions of an entity's social performance and/or environmental impact, non-financial statement information or non-financial information (IASB 2006: par OB16).

Outside the financial statements, the information models are less well defined. The information provided by MC focuses on meeting the needs of investors and should not be expanded to fulfill the information needs of an extended range of users. MC should also not be seen as a replacement for other forms of reporting addressed to a wider stakeholder group. These other forms of reporting could include sustainability and corporate social responsibility reports. They are aimed at the needs of a broad class of stakeholders. The IASB specifically states that the existence of an IASB pronouncement on MC would not prevent a jurisdiction from developing reporting requirements for the benefit of other defined users (IASB, 2005: par 29-31). A number of respondents to the MC Discussion Paper explicitly noted that they agree with focusing on the needs of investors. There was also an alternative view put forward by some respondents stating that if the Framework refers to multiple users, so should MC (IASB Information for Observers, 2007a: Agenda Paper 11A). These discussion papers have yet to become exposure drafts. The debate continues.

Sustainability reporting is still a relatively new and young discipline. Despite the guidance offered by the GRI in 2006 in the third generation of the Sustainability Reporting Framework (G3) and other reporting frameworks, there is no specific standard as to what format sustainability reporting should take. It is also unclear what it should cover, both internally to management and externally to broader stakeholder groups (GRI, 2006b).

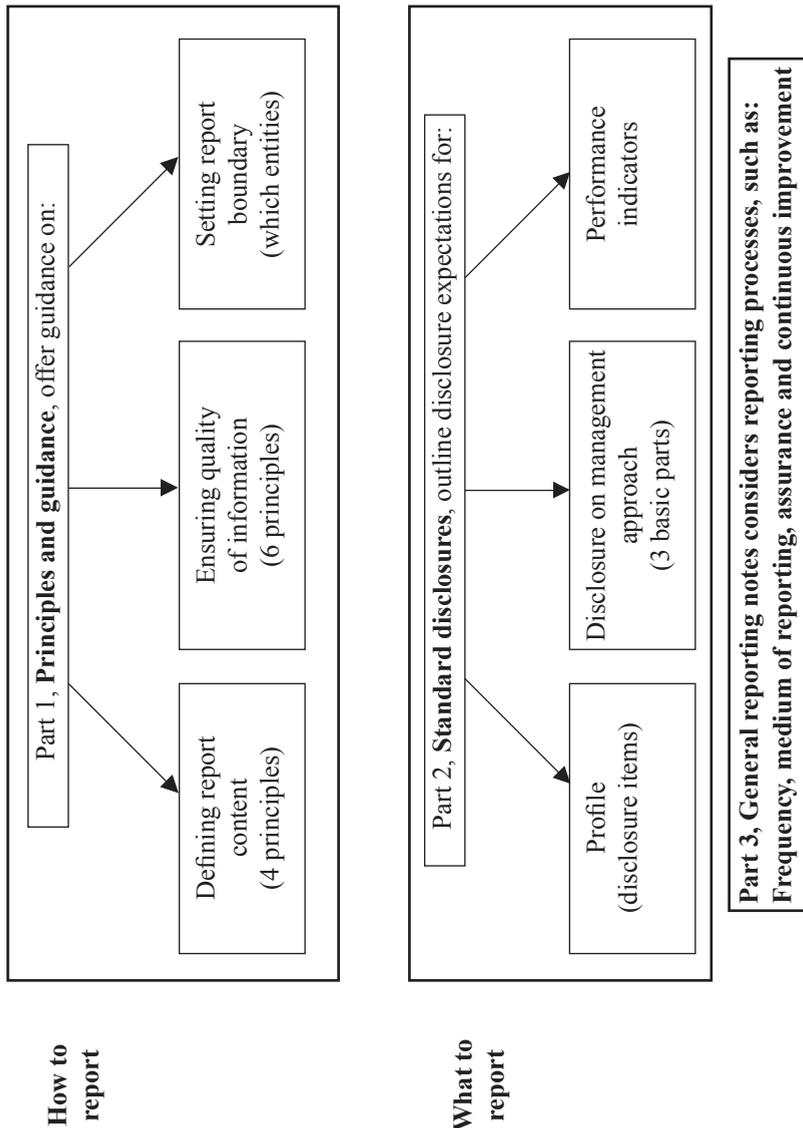
For those tasked with preparing and writing a Sustainability Report this brings many challenges and they will have to rely on the GRI's G3 Guidelines to guide them.

### **5.2. The structure of the G3 Guidelines**

The GRI's vision is that reporting on economic, environmental and social performance by all organisations is as routine and comparable as financial reporting. At the core of the GRI Framework are the Sustainability Reporting Guidelines. The release of the G3 Guide-

lines marked an important step in the evolution of more sophisticated sustainability reporting standards worldwide (GRI, 2006b) and established an authority on sustainability reporting. G3 aims to make the Guidelines in the GRI Sustainability Reporting Framework more useful to the financial community. The GRI G3 guidelines are the most widely accepted guidelines for producing sustainability reports. The overall structure of the G3 document has been adjusted to better match the flow of a typical reporting process and is divided into three parts: 1) Principles and guidance, 2) Standard disclosures and 3) General reporting notes. These three parts and the subsections thereof are presented in Figure III below.

**Figure 3: The Content of the G3 Guidelines**



(Source: GRI, 2006b [adjusted to add a focus for this paper])

The focus of this paper is on the “How to report” part. This part deals with defining report content, setting the report boundary and spelling out the principles ensuring quality of information.

The four principles for defining report content are materiality, stakeholder inclusiveness, sustainability context and completeness. “A strong new theme in the G3 text is the importance of viewing the indicator set first through a filter of materiality” (GRI, 2006b).

A sustainability report, within the group context, should include in its ambit all entities that generate significant sustainability impacts (actual and potential), based on the significance of the impact.

The six principles (approaches to achieve quality information) to ensure quality of reported information outline a practical and flexible approach to increase the transparency of information disclosed in sustainability reports. The paper now focuses on these principles.

### **5.3 The principles to ensure the quality of reported sustainability information**

These six principles should guide decisions in the process of preparing information to be included in the report to ensure the quality of reported information, including proper presentation of the report and are fundamental for effective transparency.

The principles are: reliability, clarity, balance, comparability, accuracy and timelines. For each of these a short definition is given followed by a longer explanation of the definition and a series of practical self-tests (questions to be asked) to be used by the preparer to determine if the applicable principle has been met (GRI, 2006a).

When looking at these six principles it seems as if transparency is missing but the perceived overarching goal behind sustainability reporting is transparency. By applying the principles above, entities are moving towards greater transparency. Transparency has actually been taken as the overarching concept (compared to the “decision-usefulness” concept of the Framework Discussion Paper (IASB, 2006)) in G3 of the GRI Sustainability Reporting Framework.

Brewster (2007) warns that even when companies are reporting on sustainability issues, there is the further problem of getting them to report in a comparable way. If each entity uses different measurements, the results are impossible to compare, leaving investors and other stakeholders no better off. The quality of information enables stakeholders to make sound and reasonable assessments of performance and to take appropriate action.

The “principles to ensure quality information” of G3 and the QCs of the Framework Discussion Paper and the QCs of MC are more closely related than one might think on face value. They will be compared in the discussion to follow.

## 6. THE QUALITATIVE CHARACTERISTICS OF THE IASB’S PRONOUNCEMENTS AND THOSE OF THE GRI’S G3

### 6.1 The qualitative characteristics of the IASB’s pronouncements compared with those of GRI’s G3

The MC Discussion Paper was issued in 2005 and therefore only the QCs of the existing Framework were considered by the IASB to see if they would also be appropriate to ensure that MC achieves its objective. The Framework Discussion Paper was issued in 2006 and contained some of the old QCs and, as discussed earlier, some new ones. The QCs of the two Frameworks and those of the MC Discussion Paper, all being IASB pronouncements, are presented and compared in Table IV, below.

Also included in Table IV is the “QCs” as discussed earlier in the GRI’s G3 Framework, called “Principles to ensure quality of information”. These “QCs” of G3 are compared to those of the IASB’s pronouncements and are also presented in Table IV, below.

**Table 4: Qualitative characteristics compared**

Qualitative characteristics of the IASB’s pronouncements		Principles to ensure quality of information	
Conceptual Frameworks		Management Commentary	G3 of the GRI’s Framework
Existing	Proposed		
Relevance	Relevance (necessary QCs)	Relevance	
Reliability	Faithful representation (necessary QCs)	Supportability Balance	Reliability Balance Accuracy
Understandability	Understandability (enhancing QCs)	Understandability	Clarity (understandability)
Comparability ▶ Over time ▶ Across entities	Comparability (enhancing QCs) ▶ Over time ▶ Across entities	Comparability ▶ Over time	Comparability ▶ Over time ▶ Across entities
	Timeliness (enhancing QCs)		Timeliness ▶ Regular ▶ In time

(Source: The author)

The above table makes it clear that the QCs of financial reporting and other forms of reporting are going through a development phase and could further be influenced by developments to come.

## 6.2 The way forward

Some organisations have taken the QCs contained in the Framework and developed them further or have amended them with, e.g., a focus on sustainability reporting. G3 of the GRI could be seen as a response to calls of environmentalists for a sustainability reporting framework, containing, inter alia, “The principles ensuring quality of information”, similar to the QCs of the Frameworks.

The links between the “QCs” developed for MC and those of the GRI G3 Framework and those contained in the Frameworks of the IASB are obvious and have clearly been operationalised with a specific reporting perspective in mind. Where the QCs of the Frameworks (existing or proposed) focus on “decision-usefulness”, those of the GRI G3 focus on transparency and those of MC have an orientation towards the future.

The accounting profession has seen a move towards a more **“risk-based” reporting approach** and a move away from the traditional “cost price” reporting approach. IFRS 7 *Financial Instrument Disclosure* (IASB, 2007) has introduced the concept of reporting on risk and it can be expected that the concept of “risk-based” accounting and reporting will play a larger roll in the future (Luke, 2006). Many environmental risks are future-orientated. It is expected of management to report on the most important issues facing the entity (IASB, 2005), and different kinds of risks could be included here. Different kinds of users need information on different kinds of risks.

Although similar, the **users of financial reporting** intended by the Framework(s), the users of MC and those of reports on sustainability issues, all of whom have been discussed earlier, are not always the same. Too many sets of “QCs” could actually make financial reports “un-understandable” to users and could lead to confusion when assessing the information contained in financial statements and/or MC and/or sustainability reports. It also increases the direct and indirect cost of preparing financial reports.

Going back to simplicity could actually be a big step forward. This step should be towards having only one set of QCs serving all the different kinds of reports. This set should also serve all the different “levels” of financial reports, whether they are mandatory or non-mandatory reports or only best-practice codes.

The response to the question regarding the **kind of pronouncement and format of MC** also confirms that more debate is needed. Approximately 55% of the respondents who answered this part of the question have indicated that they prefer the development of non-mandatory guidance instead of a standard. Nevertheless, significant responses were received for the standard option (IASB Information for Observers, 2007a: Agenda Paper 11A). Others argue that MC should be part of the best-practice codes for listed companies (The University of Waikato, 2006) or that the IASB could prescribe best practices for MC (BASEL COMMITTEE ON BANKING SUPERVISION, 2006). However, others fear that requiring cer-

tain disclosures, or even a best-practice statement, could result in a mechanical box ticking approach (IMA, 2006).

Other respondents argue that a **separate framework should be developed for MC** (SA-ICA, 2006; CIPFA, 2006 and ACT, 2006) or that MC should form a key component of the new Conceptual Framework (PWC, 2006). The SWG (2006) even goes so far as to believe that the IASB should consider creating a **new Board** which, as a priority, could develop a comprehensive framework for MC and other forms of reporting, e.g. reporting on sustainability responsibilities, including environmental impact and social performance.

## 7. SUMMARY AND CONCLUSION

QCs, which are the attributes that make information provided in financial statements useful to users, are addressed in two recent IASB Discussion Papers.

The QCs of the MC Discussion Paper, published in 2005, are similar to those in the Frameworks, but are not the same. The QCs of the Framework Discussion Paper, published in 2006, are also similar to those in the existing Framework but have been revamped to fit in with the new objective of financial reporting and the focus on the new primary user group (present and potential investors). The QCs of MC have a tendency to be more future-orientated while those of the Framework Discussion Paper are focused on decision-useful information. The narrative information in MC should support the financial information provided in financial statements. The objective of financial reporting pertaining to all of financial reporting, and not only to financial statements, is to provide decision-useful information to different user groups. This could include information on an entity's sustainability responsibility, including its social performance and environmental impact.

To improve the quality of external sustainability reporting itself there is an urgent need to improve the conceptual underpinning thereof. The publication by the GRI of the G3 Reporting Guidelines in 2006 marks an important step in the evolution of more sophisticated sustainability reporting standards worldwide (GRI, 2006b). Standardised reporting promises to elevate sustainability reporting to the level of financial reporting by delivering a steady flow of reliable, balanced and comparable information to environmentalists, investors and other stakeholders. The principles to ensure quality of information of G3 attempt to address this and are focused on transparency.

The challenge for standard setters, i.e. the IASB and the GRI, will therefore be to develop "QCs" that will be the attributes that will be applied to distinguish more useful information from less useful information. Many future developments, like the other phases of the Framework Improvement Project, the move to fair value measurement and the convergence project of the IASB and the FASB, to name a few, might impact on the QCs of the Framework and accordingly on the QCs of MC. Financial reporting should meet the need to provide decision-useful information to the different user groups. Too many sets of QCs might just

jeopardise this ideal. Going back to simplicity might in the end be a big step forward. This is also the view of the MC project team. (IASB Information for Observers, 2007a, Agenda paper 3A par 73).

In summary, this paper demonstrates that the debate surrounding the QCs of financial reporting, MC and sustainability reporting is far from over. The intention of this paper was to stimulate further debate.

## REFERENCES

- ACT (Association of Corporate Treasurers) 2006: Comment letter CL69 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploaded\\_files/documents/16\\_230\\_MC-CL69.doc](http://www.iasb.org/uploaded_files/documents/16_230_MC-CL69.doc)
- Anonymous, 2006, ASB response to Conceptual Framework Discussion Paper, *Accountancy Ireland* Vol 38, Issue 6 December 2006. [On-line]. Assessed on 21/11/2007.
- ASB of Japan (Accounting Standards Board of Japan) 2006: Comment letter CL57 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 10/01/2008. Available [http://www.iasb.org/uploaded\\_files/documents/16\\_230\\_MC-CL57.doc](http://www.iasb.org/uploaded_files/documents/16_230_MC-CL57.doc)
- BASEL COMMITTEE ON BANKING SUPERVISION 2006: Comment letter CL105 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploaded\\_files/documents/16\\_230\\_MC-CL105.doc](http://www.iasb.org/uploaded_files/documents/16_230_MC-CL105.doc)
- Bennet, B., Bradburt, A and H Prangnell, 2006, Rules, principles and judgements in Accounting Standards, *ABACUS* Volume 42, No 2 2006. [On-line]. Assessed on 10/12/2007. Available <http://www.blackwell-synergy.com/doi/abs/10.1111/j.1467-6281.2006.00197.x>
- Brewster, D. 2007, Sustainability report seeks the facts, FT. com. Published 9 December 2007. [On-line]. Assessed on 10/01/2008. Available [http://www.ft.com/cms/s/891e150c-a4e6-11dc-a93b-0000779fd2ac,dwp\\_uid=f38b85...](http://www.ft.com/cms/s/891e150c-a4e6-11dc-a93b-0000779fd2ac,dwp_uid=f38b85...)
- CESR (The Committee of European Securities Regulators) 2006: Comment letter CL 109 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploadedfiles/documents/16\\_230\\_MC-109.doc](http://www.iasb.org/uploadedfiles/documents/16_230_MC-109.doc)
- Christensen, J. and J. Demski, 2007, Anticipatory reporting standards, *Accounting Horizons* Volume 21 Issue 4 December 2007. [On-line]. Assessed on 09/01/2008. Available <http://www.atypan-link.com/AAA/doi/abs/10.2308/acch.2007.21.4.447>
- CICA (The Canadian Institute of Chartered Accountants) 2006: Comment letter CL33

received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploaded files/documents/16\\_230\\_MC-CL33.pdf](http://www.iasb.org/uploaded files/documents/16_230_MC-CL33.pdf)

CIMA (The Chartered Institute of Management Accountants) 2006: Comment letter CL40 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploaded files/documents/16\\_230\\_MC-CL40.doc](http://www.iasb.org/uploaded files/documents/16_230_MC-CL40.doc)

CIPFA (The Chartered Institute of Public Finance and Accountancy) 2006: Comment letter CL66 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploaded files/documents/16\\_230\\_MC-CL.66.doc](http://www.iasb.org/uploaded files/documents/16_230_MC-CL.66.doc)

DASB (Dutch Accounting Standards Board). 2006. Comment letter CL18 received on the Discussion Paper *Management Commentary*. [On-line]. Assessed on 23/08/2006. Available [http://www.iasb.org/uploaded files/documents/16\\_230\\_MC-CL18pdf](http://www.iasb.org/uploaded files/documents/16_230_MC-CL18pdf).

Einhorn, E. 2007, Voluntary disclosure and uncertainty about the reporting objective, *Journal of Accounting and Economics* Volume 43, Issue 2 3 July 2007. [On-line]. Assessed on 31/07/2007. Available <http://www.ejournals.ebsco.com/direct.asp?ArticleID=478BA90801CA73256771>

## ECONOMIC AND MANUFACTURING DEVELOPMENT IN OMAN

**Prof. Nazar Al – Rubayi and Mr. Sriram Balasubramanian**

### ABSTRACT

Manufacturing plays a vital role in the development of a country. Oman has a small open economy with oil and gas as its main export resources. To have a balanced rate of growth, manufacturing should be extended to provide more job opportunities and social and economic welfare for Omanis.

Manufacturing development in Oman started at the beginning of the Seventies. The first five year plan was introduced between 1976 and 1980 and followed by others and the current, the seventh five year plan, will end by 2010. In those plans the government encouraged national and foreign companies to invest in various sectors to improve the economy. Though the beginning was very simple, manufacturing now contributes nearly 11% of GDP. This will increase over the coming years, especially when some firms jointly owned by the government and international companies, mainly in the areas of petrochemicals, fertilizers, and basic industries start production and begin to export. The government is encouraging these foreign investments to attain its strategic aims.

The future linkages of these industries with related intermediate and primary industries would be great, and it is expected that the contribution of manufacturing to GDP will rise sharply.

Nevertheless, the manufacturing base in Oman has to be expanded and enlarged to include other manufacturing industrial sectors, which are expected to make a useful contribution to the export markets, both at regional and world levels. Data from the annual industrial reports and Statistical Yearbook are used to analyze the results in order to conclude some outcomes and suggest some recommendations.

### KEYWORDS

*Manufacturing Development, Economic Development, Non – Oil Sectors, Industrial Development*

## 1. INTRODUCTION

In general, countries which depend on single commodity revenues need to diversify their economies. The Sultanate of Oman, a country mostly dependent on oil resources and revenues has been implementing a development strategy centered on a liberal trade regime and aimed at, *inter alia*, reducing its high dependence on crude oil and natural gas (almost 50% of its GDP, 65% of government income, and over 90% of merchandise exports). Formulation and implementation of Oman's trade policy is the responsibility of the Ministry of Commerce and Industry, in coordination with other ministries. The private sector provides inputs to trade policy formulation through the Oman Chamber of Commerce and Industry on an ad hoc basis. Private sector participation is being encouraged by removing obstacles to foreign investment.

The Sultanate of Oman has been classified as the only Arab 'success story' by the Commission on Growth and Development 2008 and has grown at average rate of 7% or more for more than 25 years. Apart from that, Oman is one of the very few countries to have been relatively unaffected by the present recession. Oil revenues can not be the only means for this classification. Manufacturing and industrial sectors should play a vital role to maintain stable economy.

In this research, we try to bring out the contributions of manufacturing sectors in GDP. Also we discuss economic and manufacturing development in Oman in recent years. The major idea of this research is to study the development in manufacturing sectors in Oman and their impacts. A model was developed to estimate the Omani manufacturing industrial function using various factors that influence manufacturing development. We have suggested some recommendations based on findings for the future development.

### **Economic Development in Oman**

Economic development in Oman started in the beginning of the Seventies, when oil revenues began to serve the government purposes to finance economic projects. The contribution of such revenues was and still is high; the percentage reached 60.8% of GDP in 1980. Then it declined to 48.1% in 1995 and further to 41.5% in 2003 because of the rise in the contribution of other sectors of the economy and the decline in the price of oil between 1998 and 2003. Oil revenues formed 42.9% of GDP in 2004, 49.4% in 2005, 47.6% in 2006, and 45.2% in 2007. The percentage was certainly higher for 2008 as the price of a barrel of oil touched \$147 at the beginning of 2008. Also, higher oil prices have enabled the government to accumulate some savings and to have a surplus trade account. Trade volumes for commodity exports and imports reached more than OR6.5 billions in 2001 – 2002, and exceeded OR7 billions in 2003, OR8.5 billions in 2004 and nearly OR11, OR12.6 and OR15.7 billions in 2005, 2006, 2007 respectively. Since oil prices are on the increase, revenues are expected to rise and surpluses to grow even further if the world gets rid of the existing recession. Also, it

is expected that these revenues would continue to be the main source of government expenditure for forthcoming decades, which underlines the need to diversify the economy through the development of the non – oil sectors, of which manufacturing is a major one. The later development would be seen as a necessary step to tackle the imbalance already maintained in the GDP structure which had led somehow, to a disparity in wages and salaries between the public and private sectors. That is, despite the contribution of the private sector, public expenditure remains and would stay as the main vehicle for growth in the foreseeable future. But, this expenditure was confined mainly to provide health, security, and defense services, with a small part of it only specified to the commodity sectors, and hence the policy – maker needs to pay more attention to the commodity sectors along with the service ones.

Table (1) shows the distribution of government development expenditure on different sectors of the economy. It is clear that public investment in 2007 on sectors like oil and gas was very big, and counted for 49.0% (or OR869.5 millions), infrastructure counted for 38.0% (or OR666.3 millions) and that of the services was 8.7% (or OR153 millions) out of a total OR1755.2 millions, but it was given only 0.8% for industry, 0.7% for agriculture, and 0.3% for fisheries in spite of the importance to develop such sectors to reduce dependency on the depleting resources.

The lack of public investment in the commodity sectors was minimized by encouraging private investment through providing incentives and funding for business projects. The labor force is reasonably big and ready to push growth quite rapidly if appropriate training and vocational courses are provided. There are a lot of technical colleges and training institutes to train and qualify Omanis and to replace expatriates. But in spite of all the positive development, Omani workers (those able to work between ages 20 to 60) still represented a low percentage of the total labor force in 2007. This problem poses a great challenge for policy makers to reconsider the existing economic policies and implement alternative ones that could lead to expanding further the commodity and service sectors in order to widen the productive bases of the economy and encourage export and local consumption of such products, which will open the opportunities for employing more Omani workers. Also, it indicates the need to adjust the package of incentives given to foreign direct investment in order to increase its contribution to the non – oil sectors; those incentives should be made more attractive compared to other packages given by neighbouring countries, such as Dubai.

**Table1: Sectoral Distribution of Government Development Expenditure & Relative Shares (%) (Millions Omani Rials)**

S.No	Sectors	2005		2006		2007	
		%	Value	%	Value	%	Value
1	Commodity Production Sectors						
	Crude Oil	24.3	249.5	24.3	322.5	27.2	477.3
	Natural Gas	17.4	178.2	20.5	272.2	21.8	382.2
	Other Minerals	--	0.1	--	--	--	0.1
	Agriculture	0.7	6.9	0.3	3.9	0.2	3.8
	Fisheries	0.3	3.1	0.1	0.9	0.2	3.0
	Manufacturing	0.8	0.8	5.1	67.9	2.8	49.8
2	Service Production Sectors	16.1	164.9	12.6	167.2	8.7	153
3	Infrastructure	39.8	407.8	36.3	481	38.0	666.3
	Information & Religious Services	0.7	7.5	0.8	11.0	1.1	19.7
	Total	100	1026.4	100	1326.6	100	1755.2

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

Table (2) shows total loans provided by the Oman Development Bank between 2002 –2006. Apart from 2006, the focus was first on fisheries, second on agriculture, and third on manufacturing in terms of the bulk of loans given to the non – oil sectors. In 2006 the concentration was on manufacturing first because of the government contribution in building the petrochemicals, aluminum smelter, oil refining, and iron & steel firms mostly in the Sohar free trade zone, of which some of them start producing now, while the rest will be completed soon. Nevertheless, further steps by the public and private sectors to maintain an even development and contribution of oil and non – oil sectors to Omani GDP need to be implemented.

**Table 2: Loans Approved by Oman Development Bank Distributed Economic Activity - Year 2002 – 2006**

Sectors	2002				2003			
	Projects		Loans Approved.	%	Projects		Loans Approved	%
	No	Total Cost			No	Total Cost		
Fisheries	429	1345	814	29.8	540	1536	908	35.9
Animal Wealth	31	222	95	3.5	43	257	103	4.1
Agriculture	158	1267	742	27.1	151	1031	612	24.2
Industry	22	926	444	16.2	12	688	386	15.2

Mining	24	233	125	4.6	39	457	237	9.4
Education	2	55	15	0.5	5	240	100	3.9
Health	8	604	166	6.1	3	103	47	1.9
Tourism	11	463	213	7.8	5	30	19	0.7
General Services	31	245	100	4.4	50	203	120	4.7
Total	716	5360	2734	100	848	4545	2532	100

Sectors	2005				2006			
	Projects		Loans Approved.	%	Projects		Loans Approved	%
	No	Total Cost			No	Total Cost		
Fisheries	563	1746	1061	32.8	871	3773	2147	17.7
Animal Wealth	59	355	167	5.2	17	125	54	0.4
Agriculture	223	1591	970	30.0	320	3800	2304	19.0
Industry	40	607	326	10.1	54	8272	3288	27.2
Mining	47	400	239	7.4	72	921	436	3.6
Education	1	9	5	0.2	19	5030	2349	19.4
Health	5	44	22	0.7	10	920	456	3.8
Tourism	16	325	200	6.2	28	1186	536	4.4
General Services	49	521	247	7.6	100	1109	538	4.4
Total	1003	5598	3237	100	1491	25136	12108	100

(Source :Statistical Year book 2008, Ministry of National Economy, Oman)

### Manufacturing Development

Economic policy in Oman is based on encouraging the private sector to invest in non – oil development of businesses. Accordingly, the government provides a package of industrial incentives to serve this purpose. The incentives are mainly given to reduce the cost of production and make manufacturing more competitive; such as the exemption of duties on import of raw materials and equipment used in manufacturing, a total relief of income tax for the first five years of production, with a possible extension of another five year period. Other incentives are to provide warehouses or other facilities through the construction of modern industrial estates in major cities, supplying many types of services including a reduced rate per unit of water and electricity used for industrial production purposes. Also the ministry of commerce and industry provides loans at a low rate of interest, and can assist in conducting feasibility studies, and prepare profiles for a number of viable manufacturing projects ready

for implementation<sup>1</sup>, especially for those medium and small sized firms. Add to that, the government has invested heavily in creating the right infrastructure, which was necessary to facilitate and encourage the establishment of manufacturing industries, and export of Omani products. During the last ten years the government joined some foreign companies to invest in liquefied natural gas, petrochemicals, iron and steel and aluminum firms. Also it has invested to create a large free trade port and industrial estate at Sohar and Salalah, which will facilitate production and export of manufacturing products, and to encourage the establishment of numerous intermediate and final product firms from the basic ones mentioned above.

## 2. Literature Review

The Sultanate of Oman is strategically located on the southern corner of the Arabian Peninsula, which helps the country to have good relationship with the neighboring countries in both Asian and African continents. Market-oriented policies and private sector development are the deeply rooted economic concepts and practices in Oman. The Government has always regarded a dynamic private sector as the engine of prosperity and growth. The government through consecutive Five-Year development plans has achieved remarkable progress on both the economic and social fronts in a relatively short period of time. The laws and regulations were amended and guaranteed equal opportunities and freedom for all. All these reform measures paved the path to social and economical development and broke away the economy's potential ability on dependency on oil and diversified the sources of national income.

In the early seventies, the development planning of commercial exploitation of oil increased GDP and per capita income. This helped the government to develop human resources, infrastructure, basic health and the education system. The economy has gradually reduced its level of dependence on the oil sector and has given a renewed thrust to diversification by encouraging the private sector, the small and medium enterprises and manufacturing.

The Sixth Five – Year development plan (2001 – 2005) had economic diversification as one of the dimensions and “Development of non-oil exports in goods and services through increasing their share, quality standard and structure” had been made as one of the objective to achieve the goal<sup>(1)</sup>. Various projects were initiated all over the country to achieve this goal. Also privatization was implemented and various private sector industries were started to help economical development.

In the Seventh Five – Year plan (2006 – 2010), expenditure rationalization and enhancing non – oil revenue has been aimed and fiscal framework was structured accordingly. It was expected that the average investment rate will increase to about 24.4% of GDP during the plan period. The overall government revenue for the plan period was estimated to be R.O. 18636 Million in which non – oil revenue constitutes R.O. 5752 Million, which is nearly 30% of the total.

The per capita income (in USD) was raised to 9000 in 2005, which is nearly 10 times when compared to the per capita income 950 USD at the beginning of the period of high growth (1960 – 99). The average growth in GDP in 1980 – 2007 was 6.31. Oman has also registered surpluses in both its overall fiscal position (an annual average of 8.4 per cent of GDP over 2001-06) and external current account (an annual average of 8.6 per cent of GDP over 2001-07). The net result has been a rise in the country's per capita income to around US\$14,500 as of 2007.

Progress has been particularly noteworthy in the important non-oil sector of the economy. While Oman's non-oil economy did not expand as rapidly as that of the other GCC countries in the early stages of the current oil boom, it has maintained a momentum that these other countries lack. Oman's average annual inflow of foreign direct investment (FDI) increased from OR 208.9 million in 2003 to an estimated OR 637.7 million in 2006, partly as a result of steps taken to improve Oman's investment climate, including the 1997 establishment of the Oman Centre for Investment Promotion and Export Development. Oman's manufacturing sector benefits from its relatively large endowment of hydrocarbons, which are used as inputs by industries producing chemicals and liquefied natural gas. Tariffs on manufactured goods average 5.6 per cent, with rates ranging up to 100 per cent on alcoholic beverages, tobacco and tobacco products. Despite its small and decreasing share of total GDP, agriculture is an important sector in the economy because of Oman's desire for food security. Oman's high rates of growth suggest that the country has successfully undertaken a programme of economic reforms, particularly those associated with increased economic freedom. Index of Economic Freedom (with data referring to 2007), Oman ranked as the world's 42nd freest economy. Its overall score rose by 1.4 percentage points over 2006, reflecting improved scores in three of the ten economic freedoms. Oman is ranked the third freest of 17 countries in the Middle East/North Africa region, and its overall score is higher than the regional average. Oman's scores are higher than the world average in eight of the ten economic freedoms and especially high in fiscal freedom, trade freedom, labour freedom, and freedom from corruption.

Industry continues to act as an important nexus of economic diversification in the Sultanate. Underpinning the growth of the sector is a network of industrial estates and, more recently, parks and hubs. Oman's strategy of diversification also includes efforts by the government to encourage and accelerate private sector activity. Oman has established an infrastructure capable of sustaining a wide range of industrial activity. While oil refining operations and the gas-based petrochemicals industry still account for the greater part of Oman's industrial output, the non-oil manufacturing segment has grown at a rate of 30-40% per year since 2003, with the food and beverage segment leading the way. Looking ahead the sector is widely expected to emerge from the crisis on a strong footing, with strong support from the government continuing to propel industry towards greater capacity and diversity. As a tourist destination, Oman is drawing praise worldwide and the Sultanate is gearing up for further

growth. The sector is part of a wider drive towards economic diversification away from the oil sector as well as an important source of employment to meet Omanisation goals. Current statistics show that the sector currently contributes about 2.1% of GDP. Oman's construction industry has shown a high degree of resilience to the adverse economic conditions of late 2008 and 2009, maintaining a steady rate of growth it has enjoyed for many years. In 2006, the construction sector contributed OR566.3m (\$1.47bn) to the Sultanate's GDP, increasing by 34.7% to OR762.7m (\$1.97bn) in 2007 and by 47% to OR1.1bn (\$2.85bn) in 2008. The telecommunications sector is on the brink of change: a new fixed-line operator – Nawras – is expected to unveil services in late 2009 and early 2010, introducing the government-owned incumbent, Oman Telecommunications Company (Omantel) to its first taste of competition. The authority's efforts seem to have been largely successful – mobile penetration rate reached nearly 130% in July of 2009 and prices have dropped continuously over recent years as a result of competition. A number of new and ongoing initiatives are expected to dramatically change the sector over the next few years in terms of internet penetration. The most recent figures show an internet penetration rate of 2.7%, though the government estimates that each internet connection is used by around six people, and so puts the actual penetration rate at around 16%.

### **3. Research Methodology**

#### **Data Collection**

For this research purpose secondary data were collected from the following sources: the Statistical Year Book issued by Ministry of National Economy, Sultanate of Oman in October 2008, A Glance at industry in Oman, and other industrial reports, Ministry of Commerce and Industry, 2004-2008.

The factors of the analytical model used were determined based on their impact on economic development and the industries. Further, data analysis was conducted to know the main characteristics of Oman's manufacturing and economical development by using various data. Value of total capital investment in industry, Number of workers employed in industry, Value added to the value of total product in industry were considered to be the major variables as they have greater impact on the manufacturing and economical development.

#### **Data Analysis**

To understand the main characteristics of the manufacturing sector in Oman, the data analysis was done mainly between 2000 and 2009.

- a). The government incentives to encourage local capital to invest in manufacturing were not enough; it did not produce a rate of growth to enable this sector to achieve a reasonable percentage of GDP. Only OR 519 millions and OR 510 millions of accumulated capital in manufacturing were achieved in 2002 and 2003. These were less than the

figures which have been accumulated in 2000 and 2001, (Table 3). The decline in capital invested in manufacturing continued in 2004 as a direct result of the Omanization process, which led to the closure of many textile and food industries. But because of the government contribution to LNG, petrochemicals, and mineral projects, the accumulated capital in manufacturing jumped by more than 80% in 2005 compared to 2004 figures and continued to increase in 2006 and 2007 though by small percentages (7.94% and 10.02% consecutively). As a result, it is obvious that the government initiatives to develop the commodity sectors were needed to secure high rates of growth and generate more income and employment.

**Table3: Accumulated Capital in Manufacturing Industries by Activities except Crude Oil & Liquefied Natural Gas for the years 2003 – 2007 (In Thousand Omani Rials)**

Year	Capital Accumulation	Rate of Growth
2000	494082	4
2001	529647	7
2002	519270	-1.9
2003	510461	- 1.74
2004	508137	- 0.46
2005	916154	80.3
2006	943118	2.94
2007	1037653	10.02

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

b). The distribution of firms by size (as reflected by the number of employees in manufacturing establishments – Table 4), revealed that 380 establishments (or 80% of 483, the total number of establishments) were medium sized firms, having only less than 100 employees. The rest (103 establishments or 20% of the total) were large sized, employing more than 100 employees. Small establishments, employing less than 10 employees, were ignored in the annual industrial censuses because of their low contribution to manufacturing output.

**Table 4: Total Number and Percentage of Large and Medium Establishments in Manufacturing Industries by Activity - For the year 2007**

Activity	No of Establishments	%
Food & Beverages	97	20.1
Textiles / Garments	3	0.62
Wood & Wood Products	10	2.07
Paper & Paper Products	13	2.69
Publishing & Printing	28	5.78
Refined Oil & Liquefied Natural Gas	13	2.69
Chemical Industries	42	8.7

Plastic Products	45	9.32
Non – Metallic Mineral Products	109	22.57
Basic Metals	11	2.28
Fabricated Metal Products	53	10.97
Machinery and Equipments	11	2.28
Electric Equipments & Machinery	12	2.48
Furniture Industries	24	4.97
Medical Equipments	1	0.21
Motor Vehicles	3	0.41
Others	8	1.66
Total	483	100

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

c). As the total number of establishments in 2007 was still small, the number of total employees remained also small, nearly 46302 compared to 33395 employees in 2000, growing at a rate of 4.7% between the years 2000 – 2007 (Table 5). Though the number of large establishments was small compared to the number of medium sized, but they employed nearly 30% of total employment in all manufacturing establishments in 2007 (or 13827 employees from a total of 46302 employed by all establishments – Table 4).

**Table 5: Total Employees, Omani Employees in Large & Medium Sized Industries for the Years 2003 – 2007**

Year	Total Omanis	Total Employees	Rate of Growth (in Omanis)	Omanization %
2000	11138	33395	5.8	33.35
2001	11280	32432	1.2	34.78
2002	11937	32101	5.8	37.19
2003	12198	32319	2.19	37.74
2004	13224	34174	8.41	38.7
2005	14307	35985	8.19	39.76
2006	14761	37828	3.17	39.02
2007	16295	46302	10.39	36.57

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

d). As a direct result of the Omanization program, the number of Omani workers reached around 37% in 2007 in all medium and large sized establishments, and it is expected to increase even further in the foreseeable future as the number of skilled Omanis will increase. (Table 5).

e). Table (6) shows the number of Omanis and non-Omanis working in manufacturing establishments for the year 2007. It is clear that Omanization was going well in some manufacturing firms, the ratio of nationals to total employment has reached more than 50% in (Medical Equipments), others exceeded 45% (Basic Metals, Electric Equip-

ments and Machinery), many industries have more than 40% (Textiles, Beverages, Refined Oil, Liquefied Natural Gas, Chemical Industries, Machinery and Equipments) and some have passed the 30% ratio. This demonstrates that manufacturing is an appropriate sector to train and absorb Omani job seekers. Other industries have a ratio between 15% and 30%, which suggests that there is a good opportunity to increase these ratios even further, when more qualified Omanis are available.

**Table 6: Total Number Employees and Omani Employees in Manufacturing Industries by Activity for the year 2007**

Activity	Omani	Total	% of Omani
Food & Beverages	4100	9452	43.38
Textiles / Garments	147	679	21.65
Wood & Wood Products	290	1837	15.79
Paper & Paper Products	306	769	39.79
Publishing & Printing	462	1366	33.82
Refined Oil & Liquefied Natural Gas	935	2224	42.04
Chemical Industries	1281	2933	43.68
Plastic Products	1088	3066	35.49
Non – Metallic Mineral Products	2933	9511	30.84
Basic Metals	846	1808	46.79
Fabricated Metal Products	1899	6589	28.82
Machinery and Equipments	284	654	43.43
Electric Equipments & Machinery	715	1575	45.4
Furniture Industries	768	3176	24.18
Medical Equipments	36	70	51.42
Motor Vehicles	32	136	23.53
Other Industries	173	457	37.86
Total	16295	46302	35.19

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

The conclusion is that Omanization as a policy has been relatively successful in providing jobs for nationals, but it should not be the only means. Other measures should be taken into consideration, such as encouraging and attracting foreign direct investment to invest in various sectors of the economy and encouraging locals to save and invest more. There are still a lot of advantages to establish gas and mineral based manufacturing firms, to produce intermediate and primary products from the basic industries already in operation such as the petrochemicals, aluminum, and iron & steel. Expanding the manufacturing base will increase the volume of export, redress the balance of payments, GDP, and employing more and more national workers.

f). Taking all the manufacturing sectors as a whole, it is noticed that annual growth between 2000 and 2007 was not steady (Table 7). During 2000 and 2001 the growth was high (8%) because LNG of Oman started production and export during these two

years, this is why the annual growth afterwards were lower (barely 0.54% in 2002 and 1.5% in 2003). But from 2004 to 2007 it is obvious that the total value added in manufacturing secured a stable annual growth, probably because the petrochemicals and other mineral industries began producing. If value added for oil products and liquefied natural gas were excluded, it is noticed (Table 7) that the annual rate growth in the rest of manufacturing industries was low for the years 2000 – 2003, and then started to pickup and reached 2.8% in 2004, then climbed to over 4.0% during 2005 and 2007, but was low again in 2006, probably because some industries were under construction and did not start production in that year. The conclusion here is that big sized industries, those exporting ones, built as joint ventures between the government and some foreign companies, were more beneficial than those small to medium sized firms which are producing only for the local market.

**Table 7.1: Growth of Value Added in Manufacturing Industries for the Years**

Year	Total Value Added	Rate of Growth
2000	397301	60.0
2001	620453	56.0
2002	623833	0.54
2003	718943	15.0
2004	869921	20.1
2005	1052604	19.0
2006	1273650	21.0
2007	1450773	20.0

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

**Table 7.2. Growth of Value Added in Manufacturing Industries (Except Oil products & Liquefied Natural Gas) 2003 – 2007 (Thousand Omani Rials)**

Year	Total Value Added	Rate of Growth %
2000	227134	6
2001	231950	2
2002	252595	9
2003	270514	7
2004	332182	22.8
2005	481022	44.8
2006	502721	4.5
2007	751363	49.5

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

g). As the calculations for the period 2000 – 2007 show, total cost of manufacturing industries was high to moderate, and in few cases was it low. Analyzing figures for

2007 (Table 8), it is clear that industries such as food, paper and paper products, basic metals, and electric equipments and machinery have relatively high total cost of production, as the ratio of total value added of each of those industries to the value of total output was relatively low.

**Table 8: Total Value Added in Large and Medium Manufacturing Industries by Activity For the year 2007**

Activity	Value Added (000 RO)	Output	Value Added / Output %	Percentage
Food & Beverages	105252	360769	29.17	3.37
Textiles / Garments	1375	2560	53.71	3.98
Wood & Wood Products	7477	13451	55.59	4.02
Paper & Paper Products	1389	21170	6.561	1.88
Publishing & Printing	12962	22055	58.77	4.07
Oil & Gas Products	699410	4387000	15.94	2.77
Refined Petrochemicals	61105	98857	61.81	4.12
Chemical Industries	163386	285028	57.32	4.05
Plastic Products	27476	86758	31.67	3.46
Non – Metallic Mineral Products	175285	274445	63.87	4.16
Basic Metals	57000	211681	26.93	3.29
Fabricated Metal Products	42474	103866	40.89	3.71
Machinery and Equipments	15678	29682	52.82	3.97
Electric Equipments & Machinery	42907	261887	16.38	2.8
Furniture Industries	31932	59001	54.12	3.99
Other Industries	5665	14616	38.76	3.66
Total	1450773	6232826	664.311	6.5

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

The reason probably was due to the fact that those industries are not large and producing on a small scale to satisfy part of the local market, or they were competing with cheap imported goods, which resulted in reducing their share of the local market. Beside that, all the rest of other manufacturing industries have high value added, low cost, and a high rate of profit. Table (9) also shows moderate contribution of value added to total value of production in most sectors except crude oil.

**Table 9: Production & Value Added in Selected Sectors of the Omani Economy for the years 2003 – 2007 (In Millions of OR)**

Economic Activity	2004	%	2005	%	2006	%	2007	%
<u>Crude Oil</u>								
Total Production	3870.2	100	5467.1	100	6218.0	100	6562.9	100
Cost of Raw Materials	203.5	5.26	216.8	3.67	276.7	4.45	277.7	4.23
Value Added	3666.7	94.74	5250.3	96.03	5941.3	95.55	6285.3	95.77
Wages	102.8	2.66	117.2	2.14	115.0	1.85	116.1	1.77
<u>Manufacturing</u>								
Total Production	2013.3	100	2626.8	100	3647.7	100	4540.1	100
Cost of Raw Materials	1192.6	59.24	1619.8	61.66	2120.8	58.14	2860.7	63.01
Value Added	820.7	40.76	1006.9	38.34	1526.8	41.86	1679.4	36.99
Wages	125.1	6.21	151.2	5.76	162.2	4.45	175.2	3.86
<u>Oil Products</u>								
Total Production	407.5	100	553.7	100	795.2	100	1321.8	100
Cost of Raw Materials	383.0	93.99	506.9	91.55	744.7	93.65	1198.9	90.7
Value Added	24.5	6.01	46.8	8.45	50.5	6.35	122.9	9.3
Wages	5.4	1.33	6.1	1.1	9.1	1.14	13.4	1.01
<u>Other Manufacturing</u>								
Total Production	896.5	100	1065.2	100	1258.1	100	1509.6	100
Cost of Raw Materials	559.3	62.37	677.1	63.57	808.2	64.24	969.8	64.24
Value Added	337.2	37.63	388.1	36.43	449.8	35.76	539.8	35.76
Wages	104.2	11.62	119.9	11.26	128.4	10.21	137.5	9.11
<u>Electricity &amp; Water</u>								
Total Production	282.4	100	456.2	100	504.0	100	550.9	100
Cost of Raw Materials	159.6	56.52	253.5	55.57	334.9	66.45	365.7	66.38
Value Added	122.8	43.48	202.7	44.43	169.2	33.55	185.2	33.62
Wages	19.5	6.91	23.4	5.13	23.1	4.58	23.2	4.21

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

h). Gross capital formation, apart from the oil product and liquefied natural gas industries, was still at a low level. This is because most industries were established by local investment, and were medium to small sizes, produced goods and satisfied only a small part of the local market. While in the oil and gas industries, the government with the foreign partners was able to establish big projects by a relatively sizable capital (Table 10). In 2003, the accumulated capital in manufacturing was nearly OR 1.2 billion, then jumped to more than OR 2.5 billion in 2007. This increase was because at that time both the government and some foreign investors established some large firms in petrochemicals, aluminum, and iron and steel industries. Add to that, capital and saving in the private sector were not motivated towards industry, as the package of incentives given was not that attractive compared to incentives in other gulf states, which made the gulf and foreign companies hesitant to enter and invest in different sectors of the economy on a wide scale.

**Table10: Accumulated Capital in Manufacturing Industries by Activities For the years 2003 – 2007 (In Thousand Omani Rials)**

Activity	2003	2004	2005	2006	2007	$K = \frac{K}{Ln(2007)}$
Food & Beverages	101454	115578	128677	143178	136504	11.82
Textiles / Garments	3293	980	3144	803	530	6.27
Wood & Wood Products	1198	1664	2414	1722	2507	7.83
Paper & Paper Products	14775	9231	11873	9277	11131	9.32
Publishing & Printing	15725	12587	16516	15820	25079	10.13
Oil & Gas Product	689389	784567	932857	1016400	1472900	14.2
Refined Petrochemicals	13676	6096	11552	15096	3774	8.24
Chemical Industries	59150	60520	409229	395560	453282	13.02
Plastic Products	17178	20204	25405	26963	40882	10.62
Non – Metallic Mineral Products	158067	162428	178694	197778	218262	12.29
Basic Metals	60795	58455	67094	65523	61397	11.03
Fabricated Metal Products	17537	12105	15537	17563	29446	10.29

Machinery and Equipments	4841	6246	7294	7642	8640	9.06
Electric Equipments & Machinery	12189	15468	18504	22250	24208	10.09
Furniture Industries	13508	14240	9991	10896	10862	9.293
Other Industries	17075	12335	10229	13047	11149	9.32
Total	1199850	1292704	1849010	1959518	2510553	14.74

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

i). The narrow base of manufacturing made a low contribution to Omani GDP. In 1998 the share of manufacturing was 4.7% (Tables 11 & 12), and grew gradually to become 10.6% in 2007. Nevertheless, more investors are needed to expand manufacturing and be one of the most effective sectors of the economy.

**Table11: Contribution of Manufacturing Industries in GDP in Current Price For the Years 1998 – 2007 (Millions Omani Rials)**

Year Item	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Refined Petroleum Product	42.6	38.8	42.8	52.7	62.4	44.6	24.5	46.8	50.5	122.9
Chemical Products	16.7	17.1	149.2	349.1	305.1	289.7	459.0	572.0	1026.4	1016.7
Others	192.7	206.7	237.6	255.1	300.6	303.7	337.2	388.1	449.8	539.8
Manufacturing	252	262.6	429.6	656.9	668.1	638	820.7	1006.9	1526.7	1679.4

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

**Table 12: Contribution of Manufacturing Industries in GDP in Current Price - For the Years 1998 – 2007 (Percentage)**

Year Item	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
Refined Petroleum Product	0.8	0.6	0.6	0.7	0.8	0.5	0.3	0.4	0.4	0.8
Chemical Products	0.3	0.3	2.0	4.7	4.0	4.7	4.8	4.8	7.3	6.4
Others	3.6	3.5	3.2	3.4	3.9	3.7	3.6	3.3	3.2	3.4
Manufacturing	4.7	4.4	5.8	8.8	8.7	8.9	8.7	8.5	10.9	10.6

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

j). As a result of this low contribution of manufacturing to GDP, Oman is still depending on oil revenues to finance other activities. Tables 13 & 14 show that the contribution of crude oil in GDP was above 40%, and in some years it was above 45% (between 2001 and 2007). The contribution of services was also high, nearly 47% of GDP, this was possible because of the high level of government expenditure, which was financed mainly by oil revenues. But such revenues are not going to last for a long time and this will pose a threat to the stability and continuity of development. In other words, developing the manufacturing and other commodity sectors should be considered as vital to developmental continuity.

**Table13: Gross Domestic Product (GDP) According to Economics Activities - In Current Prices for the Years 2005, 2006, 2007 (In Million of Omani Rials)**

Economic Activities	2001	2002	2003	2004	2005	2006	2007
1. Crude Oil Production	3264.4	3269.1	3436.3	4077.7	5875.8	6739.9	7229.1
2. Non – Oil Production							
2.1. Agriculture & Fishing	157.3	158.3	162.7	174.4	183.1	191.4	201.5
2.2. Industry Production							
▶ Mining	20.7	16.4	13.4	24.9	27.8	26.7	37.8
▶ Manufacturing							
▶ Oil Products	46.1	54.1	38.0	24.5	46.8	50.5	122.9
▶ Liquefied Gas	331.7	278.5	362.3	459.0	572.0	1,026.4	1,016.7
▶ Other Manufacturing	260.7	271.9	290.3	337.2	388.1	449.8	539.8
▶ Water & Electricity	79.7	79.0	107.8	122.8	202.7	169.2	185.2
▶ Constructions	159.6	170.6	194.6	311.4	456.8	566.3	762.7
▶ Services	3499.3	3675.4	3904.6	4,072.6	4,399.7	5,175.5	6,160.4
3. Plus / Minus Net Transfer	-207.6	-226.8	-232.0	- 188.4	-213.6	-240.1	-293.8
GDP at Basic Prices	7611.8	7746.8	8277.8	9416.0	11939.4	14155.7	15962.3
4. + Taxes less subsidies on Products	58.6	60.2	65	71.0	-56.4	-4.5	48.0
Total	7670.4	7807.0	8342.8	9487.0	11882.9	14151.2	16010.3

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

**Table14: Gross Domestic Product (GDP) According to Economic Activities - For the Years 2001 - 2007 (Percentages)**

Economic Activities	2001	2002	2003	2004	2005	2006	2007
1. Crude Oil Production	42.6	41.9	41.2	42.98	49.45	47.63	45.15
2. Non – Oil Production							
2.1. Agriculture & Fishing	2.1	2.0	1.9	1.84	1.54	1.35	1.26
2.2. Industry Production							
▶ Mining	0.3	0.2	0.2	0.26	0.23	0.19	0.24
▶ Manufacturing							
▶ Oil Products	0.6	0.7	0.5	0.26	0.39	0.36	0.77
▶ Liquefied Gas	4.3	3.6	4.3	4.84	4.81	7.25	6.35
▶ Other Manufacturing	3.4	3.5	3.5	3.55	3.27	3.18	3.37
▶ Water & Electricity	1.0	1.0	1.3	1.29	1.71	1.2	1.16
▶ Constructions	2.1	2.2	2.3	3.28	3.84	4.0	4.76
▶ Services	45.6	47.1	46.8	42.93	37.03	36.57	38.48
3. Plus / Minus Net Transfer	-2.7	-2.9	-2.8	-1.99	-1.8	-1.7	-1.84
GDP at Basic Prices	99.2	99.2	99.2	99.25	100.47	100.03	99.7
4. + Taxes less subsidies on Products	0.8	0.8	0.8	0.75	-0.47	-0.03	0.3
Total	100	100	100	100	100	100	100

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

k). Most investment figures over the period 2001 – 2006 were still low in all manufacturing industries, except for petrochemicals, which experienced a heavy bulk of invested capital in some years. This was due to the construction of joint ventures between the government and some foreign companies. Other contribution of foreign investment was very limited (Table 15).

**Table15: Number of Industrial Establishments by Total Investments According to Economic Activities - Years 2001 – 2006 (Thousands of Omani Rials)**

Industrial Activities	No of Establishments						Total Investments					
	2001	2002	2003	2004	2005	2006	2001	2002	2003	2004	2005	2006
Food & Beverages	16	25	20	10	9	9	24640	4952	2056	13,412	1,252	1,161
Textiles	1	-	-	1	-	-	110	-	-	218	-	-
Wood Products	6	3	2	1	3	3	466	2826	587	40	42	122
Paper Products	5	4	2	2	2	1	1046	436	34	83	1,095	1,000
Petrochemicals	9	15	7	14	6	12	8390	154592	1583	26,293	4,409	429,037
Non – Metallic Products	9	14	12	6	8	9	16999	5781	4541	10,510	7,331	6,117
Basic Metals	2	4	4	3	2	1	350	61	2354	179	1,408	70
Metal Products	14	11	3	6	2	4	2925	4350	110	917	775	1,195
Miscellaneous	1	1	-	-	1	4	150	65	-	-	140	635
Total	63	77	50	43	33	43	55076	173063	11265	51,653	16,452	439,337

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

l). As manufacturing industries were mainly established to satisfy the local market, its contribution to total exports was very small, and was mainly coming from gas and petroleum products (Table 16).

**Table16: Import & Export of Commodities, Trade Balance - For the Years 2003 – 2007 (Millions of OR)**

S.No	Item	2003	2004	2005	2006	2007
1	Imported Commodities	2615.0	3381.9	3449.3	4244.4	6161.5
	Recorded	2527.0	3312.7	3394.0	4190.1	6144.2
	Non – Recorded	88.0	69.2	55.3	54.3	17.3
2	Exported Commodities	4486.7	5144.9	7186.9	8299.5	9493.9
	Oil	2984.5	3490.9	5071.1	5528.3	5553.5
	Refined Oil	61.4	61.5	88.3	47.4	466.0
	Natural Gas	535.9	634.0	888.4	1144.6	1180.4
	Non – Oil	304.1	420.3	555.3	812.5	1290.7
	Re – Exports	600.8	588.2	583.8	766.7	1003.3
	Export % of Oil & Gas	79.8	81.4	84.2	81.0	75.8
	Total Trade (1 + 2)	7101.7	8526.8	10636.2	12543.9	15655.4
	Total Balance (2 – 1)	1871.7	1763.0	3737.6	4055.1	3332.4

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

m). As the level of GDP is limited by production and export, the ratio of saving to GDP did not exceed 22.5% over the period 2001 – 2007. This meant only small size of the local fund was available for investment (Table 17). All in all a strategy is needed to identify ways to attract foreign direct investment into the Omani economy, especially designed to develop the non – oil sectors including manufacturing. Foreign direct investment percentages in total Omani corporate capital did not exceed 14% at best in all sectors of the economy between 2003 and 2007 (Table 18).

**Table17: Domestic & National Savings**

S.No	Items	2001	2002	2003	2004	2005	2006	2007
1	GDP at Market Price	7670.4	7807.0	8342.8	9487.0	11882.9	14151.2	16010.3
2	Final Consumption	5078.9	5244.8	5505.2	5644.1	6115.3	7015.8	8544.6
3	Gross Domestic Saving	2591.5	2562.3	2837.6	3842.9	5767.6	7135.5	7465.7
4	Net Transfer	-849.0	-903.0	-975.0	-889.7	-1281.3	-1471.1	-1810

5	National Saving	1742.5	1659.3	1862.6	2953.3	4486.3	5664.3	5655.7
6	% of Domestic Saving to GDP (3/1)	33.8	32.8	34.0	40.5	48.5	50.4	46.6
7	% of National Saving to GDP (6/1)	22.7	21.3	22.3	31.1	37.8	40.0	35.3
8	Gross National Income (GNI)				9337	11509.9	13799.2	15641.3
9	Gross National Disposable Income (GNDI)	6821.4	6904.0	7367.8	8597.3	10601.7	12680.1	14200.3

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

**Table 18: Non – Omani Capital in General Omani Corporate Companies for the Year 2007**

Activity	Foreigners	GCC Nationals
Industry	13.7	14.5
Bank & Investment Co	12.3	19.5
Services & Insurance Co	9.5	10.3

(Source: Statistical Year book 2008, Ministry of National Economy, Oman)

#### 4. Estimating the Omani Manufacturing Industrial Function

Industrial development in Oman is based on a policy of providing incentives to the private investor to undertake industrial project. This policy, along with the practice of an open economy, has led so to the development of few manufacturing industries aimed particularly to satisfy the local market, such as food and non mineral products with oil and gas products as the only exporting manufacturing industries.

##### 4.1. The Model

In order to estimate the Omani manufacturing industrial function, the following model is specified.

$$Y_i = f(X_1, X_2, X_3) \text{ where:}$$

$Y_i$  = Value added in manufacturing industries classified according to the International Standard Industrial Classification (ISIC), for the year 2007, ( $i = 1, 2, 3, \dots 9$  industries).

$X_1$  = Value of total capital investment in industry ( $i$ ) in 2007.

$X_2$  = Number of workers employed in industry ( $i$ ), and this variable could be regarded

to stand for average size of the firm in 2007, taken into consideration the number of firms in each industry.

$X_3$  = Value added to the value of total product in industry (i) in 2007.

D = Dummy Variable, is included in the regression to stand for uncounted or missing variables in the regression.

It is expected that there would be a positive relationship between total capital invested and value added in industry (i) (as reflected in the relationship between  $Y_i$  and  $X_1$ ). Also, as productivity of Omani workers increases, value added in manufacturing will be improved (as reflected in the relationship between  $Y_i$  and  $X_2$ ). In addition, as total cost decreases (or increases), it will have a positive (or negative) impact on value added, and hence on the ratio of value added to the value of a commodity in industry (i). In other words, as the latter ratio increases value added will rise (as reflected in the relationship between  $X_3$  and  $Y_i$ )

## 4.2 Results

After the collection and classification of data, a statistical program (MegaStat) was used to run simple and multiple, linear and non – linear regressions, without or with a dummy variable, to count for the missing variable(s) in the estimated model. The results can be reported as follows

### 1. Linear Regressions

(i) One Independent Variable:	$R^2$
$Y_i = 32069 + 0.32X_1$	0.93
$Y_i = 147955 + 6.3X_2$	0.002
$Y_i = -22923 + 1.96X_3$	0.98
(ii) Two Independent Variables:	
$Y_i = 9630 + 0.32X_1 + 7.25X_2$	0.94
$Y_i = 6154 - 10.05X_2 + 1.99X_3$	0.99
$Y_i = -23787 - 0.0061X_1 + 2.0X_3$	0.98
(iii) Three Independent Variables:	
$Y_i = 6995 - 0.14X_1 - 17.42X_2 + 2.83X_3$	0.99

### 2. Non – Linear Regressions

(i) One Independent Variable:	
$\log_e Y_i = -1.19 + 1.02 \log_e X_1$	0.86
$\log_e Y_i = 0.66 + 1.26 \log_e X_2$	0.33
$\log_e Y_i = -0.166 + 1.025 \log_e X_3$	0.80
(ii) Two Independent Variables:	
$\log_e Y_i = -1.58 + 0.99 \log_e X_1 + 0.09 \log_e X_2$	0.86

$\log_e Y_i = 0.53 - 0.17 \log_e X_2 + 1.08 \log_e X_3$	0.81
$\log_e Y_i = -1.2 + 0.76 \log_e X_1 + 0.28 \log_e X_3$	0.86
<b>(iii) Three Independent Variables:</b>	
$\log_e Y_i = -1.08 + 0.75 \log_e X_1 - 0.02 \log_e X_2 + 0.30 \log_e X_3$	0.86
<b>3. Linear Regression and a Dummy Variable:</b>	
<b>(i) Two Independent and Dummy Variables</b>	
$Y_i = -6.007 + 0.33X_1 - 4.52X_2 + 102D$	0.94
$Y_i = -3.02 - 17.5X_2 + 2.01X_3 + 629D$	0.98
$Y_i = -19811 - 0.02X_1 + 2.09X_3 - 13007D$	0.97
<b>(ii) Three Independent and Dummy Variables</b>	
$Y_i = 90.3 - 0.11X_1 - 21.5X_2 + 2.69X_3 + 463D$	0.99
<b>4. Non – Linear Regression and a Dummy Variable:</b>	
<b>(i) Two Independent and Dummy Variables</b>	
$\log_e Y_i = 2.1 + 1.13 \log_e X_1 - 0.68 \log_e X_2 + 1.45 \log_e D$	0.91
$\log_e Y_i = 2.1 - 0.47 \log_e X_2 + 1.12 \log_e X_3 + 0.58 \log_e D$	0.81
$\log_e Y_i = -1.03 + 0.97 \log_e X_1 + 0.003 \log_e X_3 + 0.66 \log_e D$	0.88
<b>(ii) Three Independent and Dummy Variables</b>	
$\log_e Y_i = 2.1 + 1.07 \log_e X_1 - 0.69 \log_e X_2 + 0.07 \log_e X_3 + 1.4 \log_e D$	0.91

The results in set (1) above show a positive impact of the independent variable on value added in each regression.  $R^2$  was high in all cases which proved that those results were statistically significant. This testified the fact that these results had a linear form except for  $X_2$  (employment) which reflected a little impact on total manufacturing value added. There were three probable explanations for the latter result; First: Wages and salaries in manufacturing were high to the extent it affected and reduced value added. Second: productivity of employees in this sector was still low, because they did not acquire the right skills and efficiency, and third: there was a good possibility that most manufacturing firms were not utilizing their capacities to the maximum limit, because of competition of similar imported goods, which made them marketing only limited production to the local market, or other wise their sizes were still small which let them producing only small quantities of goods at a high cost, taking only a tiny share of the Omani demand. These small sizes, as well, did not qualify and enable manufacturing to try the export markets, in other words Omani products were not seen on a wide scale in the Gulf or other foreign markets. Hence if production was limited, revenues and value added were constrained as well.

In set (2), non-linear regressions, log-regressions were performed to find whether relationships between value added as a dependent variable and capital (or investment), employment, and the ratio of value added to the value of output, as independent variables, were of a non-linear form. The results showed a high  $R^2$ , but not as high as the linear results in set (1), which tested the fact that the above relationships were more linear than non-linear, except for

$X_2$ (employment) which demonstrated higher level of significance than the linear form, which may suggested that the effect of employment on value added in manufacturing was not linear, and there was a gap between wages and salaries for Omanis' and non Omanis', and between skilled and unskilled workers, which disturbed the relationship between revenues (or value added) and productivity (or the level of employment).

Set (3) shows the results of many forms of linear regressions and a dummy variable, to stand for any missing variables in the relationship, though it was expected that the variation in the coefficient's value will be very small, as the results without such dummy variable were very good and nearer to the true lines of regressions.  $R^2$  shows a very strong relationship between all the independent variables and total value added at the firm level, with nearly the same significance as the ones without a dummy variable, which suggests again that the relationship was well identified and most variables were represented in the equation with no or little misspecification. In other words the equations were constructed in an excellent representation; this was why  $R^2$  was very high for the linear form of equations.

Set (4) repeated the non- linear regressions with a dummy variable , and again the results showed little difference compared with the same set of regressions but without a dummy variable , which was an indication that all the models were linear and perfectly specified and identified.

## 5. Discussions and Implications

As the Sultanate of Oman has a small open economy with single commodity revenue, it needs to diversify the revenues to various sectors, taking long term processes into consideration. The policy makers need to be more specific to the economic development to achieve the goals by developing real time samples which will help for the development. Though Sultanate of Oman has less abundant resources than its neighbouring countries, it is pursuing economic diversification in order to maintain the development and growth in various sectors. The neighbouring countries development and experiences should be considered with maximum carefulness. Comparative analysis may be made to be consistent with the development.

As economical development depends on various factors, of which, the manufacturing development constitute and contribute more, it should be given more priority. Also, the employment opportunities need to be increased with respect to human resource availability. To achieve the economic balance and sustainable growth, manufacturing sectors have to play an active role with market oriented policies.

When the Sultanate of Oman is considered, the sectoral distribution shows that 2.8% (Table 1) of government development expenditure in 2007 is relatively very less compared to crude oil and natural gas. This shows that more concentration should be given by the government to manufacturing sectors in future to achieve the required goals of "Vision 2020". Also,

the total number of establishment in manufacturing sector (Table 4) in the year 2007 shows that more establishments need to be increased sufficiently to provide more job opportunities and to increase their contribution to GDP. The Import & Export of commodities (Table 16) shows that manufacturing sectors need concentrate on export trades rather than local trade in order to increase their contribution to foreign trade, in turn, which will provide a sustainable growth.

Those factors which may affect the overall contribution of manufacturing sectors like interest rate on investment, foreign trade policies of neighbouring countries, investment climates and positive growth of private sector need to be analyzed in deep to get the clear ideas to achieve the vision in future.

## **6. Conclusion and Recommendations**

This paper, using analytical and econometric techniques, explored many aspects of the Omani manufacturing sector; the most important conclusions were as follows:

The Omani economy, since the Seventies, has remained a one-sided economy, depending mainly on the export of oil & gas to generate its income. This fact reflected the need to redress the pace of development and pay more attention to other non-oil sectors.

The development of the manufacturing sector, along with others, will enlarge the productive bases of Oman, and make many commodities available ready for local consumption and export.

The recent public & foreign investment in the gas, fertilizers, aluminum, petrochemicals, and other basic industries was a step in the right direction. This sort of investment made possible the diversification of the economy and enhanced exports to regional & foreign markets.

Accordingly, more private, public, and foreign capital is needed to invest in the intermediate and final manufacturing industries so they can integrate with the above basic ones.

It is clear, that the government policy of a free market, leaving mainly the private sector to develop the commodity sectors, did not so far lead to a full utilization of the available local resources. Policies were not also successful to encourage and attract foreign direct investment to the Omani market. Accordingly, a new developmental strategy is needed in order to produce the required economic activities, benefiting from the experience of some neighboring countries.

In order to develop the commodity sectors, more efforts are demanded to build strong, low cost, and efficient service & financial markets. These are necessary and probably sufficient conditions to induce initiatives in the manufacturing industries and other sectors.

## REFERENCES

- Antony J. Venbles, "Trade Policy, Cumulative Causation, and Industrial Development", *Journal of Development Economics*, Vol.49, Issue 1, April 1996, pp.179-197
- David C. Colander, and Edward N. Gamber (2002) *Macroeconomics*, Prentice Hall, New Jersey.
- Douglas A.Lind , Willium G.Marchal, and Robort D. Mason, (2002) *Statistical Techniques in Business and Economics*, Eleventh Edition, McGraw – Hill, Irwin
- H.E. Ahmed Abdulnabi Macki - Minister of National Economy, Vice Chairman of Financial Affairs & Energy Resources Council – Press Release – Visited and retrieved 10<sup>th</sup> Jan 2010 available at:<http://www.omanvistas.com/omanvistas/ahmed.htm>
- Ministry of National Economy Sultanate of Oman, "Statistical Year Book" - October 2008
- Ministry of Commerce and Industry, Sultanate of Oman - "A Glance at industry in Oman, and other industrial reports" - 2004-2008
- Ministry of National Economy, Sultanate of Oman - "OMAN: The Development Experience and Investment Climate" – 6e – 2008
- Ministry of National Economy Publications, Sultanate of Oman – Web based Monthly Statistical Bulletin 2009 – visited and downloaded 4<sup>th</sup> Sep 2009 Available at: <http://www.moneoman.gov.om/book/mb/jul2009/index.htm>
- Ministry of National Economy Publications, Sultanate of Oman – Web based Year Book 2008 – visited and downloaded 4<sup>th</sup> Sep 2009 Available at: [http://www.moneoman.gov.om/book/syb\\_2008/fscommand/english/index.htm](http://www.moneoman.gov.om/book/syb_2008/fscommand/english/index.htm)
- Nazar Al – Rubayi and Sajeev S, - "Economic and Industrial Development in Dubai – An Econometric Analysis" – *The Journal of Business Studies*, Vol 6, No 11, Jan 2009, pp 13 – 19
- Oman - Visited and retrieved 20<sup>th</sup> Nov 2009 Available at: <http://en.wikipedia.org/wiki/Oman>
- Pietro F.Peretto, "Industrial Development, Technological Change, and Long run-growth", *Journal of Development Economics*, Vo. 59, Issue2, August 1999, pp389-417
- Press Release: PRESS/TPRB/301 – June 2008 - "Impressive performance that continued reform would help sustain" – *Trade Policy Review: Oman – World Trade Organization* - retrieved 10<sup>th</sup> Jan 2010 - Available at: [http://www.wto.org/english/tratop\\_e/tp\\_r\\_e/tp301\\_e.htm](http://www.wto.org/english/tratop_e/tp_r_e/tp301_e.htm)
- Roport Tamura," Human capital and economic development", *Journal of Development Economics*, Vol.79, Issue 1, February 2006, pp.26-27

Robert Looney - "The Omani and Bahraini Paths to Development - Rare and Contrasting Oil-based Economic Success Stories" - June 2009 - Research Paper No. 2009/38 - UNU-WIDER ISSN 1810-2611 ISBN 978-92-9230-209-2

Ricky W. Griffin, Michael W. Pustay (2002) – International Business A Managerial Perspective – 3e - Prentice Hall

Sultanate of Oman – Economic Overview - Visited and retrieved 8<sup>th</sup> Jan 2010 from Available at: <http://www.gulfbase.com/site/interface/thegcc/oman/Economy.html>

The Annual Business and Political Review - "The Report – Oman 2009" – retrieved 8<sup>th</sup> Jan 2010 from Oxford Business Group Available at: <http://www.oxfordbusinessgroup.com/publication.asp?country=31>

# E-LEARNING DESIGNING AND IMPLEMENTATION BASED ON THE AUSTRALIAN FLEXIBLE LEARNING FRAMEWORK (AFLF)

**Mr. Ayub Al-Badowi**

## ABSTRACT

This paper reviews the feedback and expected outcomes for the surveyed students of the Syrian Virtual University (SVU) in designing and implementation of e-Learning based on Australian Flexible Learning Framework (AFLF). This research used Soft Systems Methodology (SSM) to analyze and understand the complex and ‘messy’ situation of the current case study. The study emphasizes the effective use of e-business services available in the e-learning. An outline for the steps for designing and implementation of e-learning is included. Goals are defined as broad objectives of a survey that are measured after students responded, whereas outcomes are defined as recommendations.

How far is the Syrian Virtual University from Australian Flexible Learning Framework? How can the Syrian Virtual University design e-learning contents based on Australian Flexible Learning Framework? How can the Syrian Virtual University assess its performance based on Australian Flexible Learning Framework? These important questions and some others will be the main titles for this research as an attempt to formulate the e-learning concept and e-learning web services.

The study finished that e-learning constantly creates new market needs to be resolved by qualified the e-business services to progress towards a new concept of knowledge helps both students and SVU to achieve their goals. The application of SSM allowed more introspection than was expected. The basic approach was not “problem solving” but finding a way to improve the situation.

## KEYWORDS

*E-learning, Framework, E-learning Design, Service Oriented Architecture (SOA), Web service, Soft Systems Methodology (SSM)*

## 1. INTRODUCTION

Every organization encounters both simple and complex problems at the end user and managerial level. Organizations solve these problems using a range of different strategies and methods. Syrian Virtual University (SVU), the real case study for this paper, is one of these organizations. It implemented its own solutions to facilitate organizational change and to overcome barriers to integrating different facilities and technologies in order to create a successful e-learning environment. What does it take to create a successful e-learning environment with minimum barriers? One main thing is the successful design. Two main frameworks that have been introduced are: the Badrul Khan e-learning Framework (Khan, 2001) and the Australian Flexible learning Framework (AFLF).

One approach that has become popular for analyzing the decision making processes that often accompany technological change is Checkland's (1981) Soft Systems Methodology (SSM), which has been developed over 30 years. SSM was developed for analyzing complex problem situations and identifying acceptable improvements that could be made to those situations. (Atkinson, Eldabi and Paul, 2002)

In this study the Australian Flexible Learning Framework (AFLF) was conducted to conceptualize the difficult interactions between a range of activities by different stakeholders (learners, instructors, and support staff) in an e-learning environment. Therefore, the AFLF is significant to this study because its systemic approach allows the modeling of the present situation at SVU, and this can guide appropriate strategies to overcome these difficulties in the adoption of an e-learning environment.

The study does not aim to build a generic learning management system (LMS), or any other learning technology system. The primary goal of studying the Australian Flexible learning Framework is to encourage "coherent diversity", by providing common service definitions which can then be used to meet the diverse goals of the SVU or any other organization.

This study will seek to answer the following questions

What are the main features of the SVU e-learning environment based on AFLF, as analyzed using SSM?

- ▶ How have the students responded to the SVU e-learning is the e- learning environment as analyzed using SSM?

This paper is divided into seven main sections. Section 1 gives an overview of the research. Section 2 looks at the various ways in which e-learning has been defined and explores the links between e-learning and e-learning design frameworks. Section 3 defines the Australian Flexible Learning Framework (AFLF) and explains the different aspects of it. Section 4 provides a sketch of the e-learning system of the Syrian Virtual University (SVU) as a first step for exploring its e-learning framework. Section 5 sketches out related work done

regarding the subject of this study. Information about key research strategies and techniques, including material on aspects of research methods are covered in detail in Section 6, or RESULTS. Finally, Section 7 offers conclusions and implications for future research.

## 2. The Syrian Virtual University (SVU)

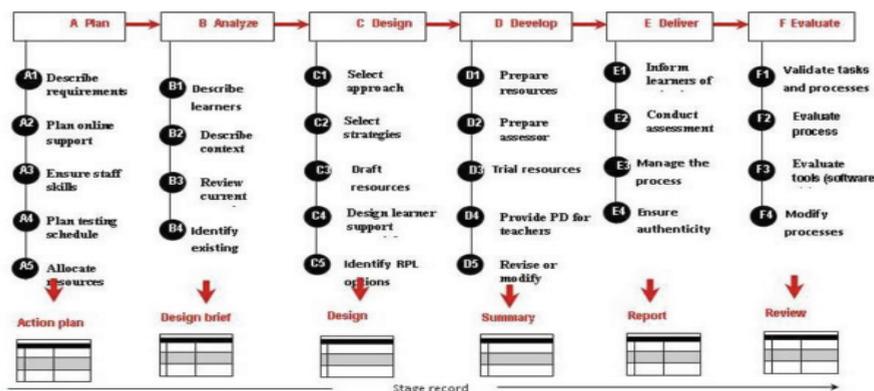
The Syrian Virtual University was officially inaugurated by President Dr. Bashar Al Assad on the 2nd of September 2002 as the first academic institution of its kind in the region. The Syrian government was the first official Arab administration to adopt the concept of Virtual Education and to invest in its foundation both financially and legally. The Syrian Virtual University is a public institution, fully accredited and endorsed by the Ministry of Higher Education in Syria. It aims to provide Arab students in the region and all over the world with International standards of Higher Education within an integrated pedagogical environment based on the latest technological developments. (Syrian Virtual University, 2002)

## 3. Australian Flexible Learning Framework (AFLF)

The Australian Flexible Learning Framework (AFLF) provides the vocational education and training (VET) system with essential e-learning infrastructure and expertise needed to respond to the challenges of a modern e-learning environment. The Framework was launched in 2000, responding to information and communication technology (ICT) developments in workplaces and society. The Australian Government and all states and territories agreed to work together nationally to advance the use of e-learning in VET. It covers all the important aspects and issues of e-learning supported with The Flexible Toolboxes and case studies. (Commonwealth of Australia, 2000)

Figure 1 shows the six stages and the tasks in online assessment and the final result of each task along with the Stage record.

Figure 1 : Six Stages and Tasks in Online Assessment



(Source : Commonwealth of Australia,2000)

## 4. literature overview

In this section technical terms have been deliberately avoided to prevent confusion as the terms are used by different communities to describe many different views of the e-learning or the infrastructure, in both general and technological contexts (though not with a consistent technical interpretation).

Most organizations with an interest in e-learning are likely to agree that it is very important to link e-learning to a strong framework as a reference model for designing and assessing their successful e-learning systems. So what are benchmarking, Framework, reference model, design and e-learning synonyms are all about? This study suggests several things about the following terminologies: e-learning, Service Oriented Architecture, Framework (e-framework), reference model, design and benchmarking:

- ▶ People have perspectives on the nature and purpose of e-learning (Mayer, 2003), benchmarking (Robert, J. and Boxwell, 1994) and Framework (Polit and Hungler, 1995), reference model (Bennett, 2006), design (Riddy et. al, 2008).
- ▶ Service-oriented architectures (SOA) are based on the belief of software services, which are high-level software components that include web services (Eduventures, 2006; Wilson, Blinco and Rehak, 2004).
- ▶ Implementation of an SOA requires tools as well as run-time infrastructure software. This is collectively referred to as a service-oriented architecture implementation framework or (SOAIF).
- ▶ The framework as formulated in the 1999 report was constructed out of two different theoretical models: The conversational framework (Laurillard, 1993) which is a well-known model of effective teaching practice for academic learning and the Viable System Model (VSM) (e.g. Beer 1979, 1981, 1985) which is a model for the design and diagnosis of effective organizational structures drawn from management cybernetics. (Britain, and Liber, 2008)
- ▶ Without overwhelming the reader with details of the theory on which it is based. The discussion we have presented above suggests that for pedagogical innovation using e-learning tools to become a reality, both software designers and educators alike need to shift their thinking from a focus on course management to include the design of learning activities themselves.

## 5. Related work

Most of the literature takes the subject of this study from definition and descriptions points of views. Such literatures did not give a practical example for comparing between a complete and practical framework (AFLF) and growing (up) e-learning system (SVU).

A paper with a title of “Web-based learning - local and offshore perspectives” by Andrew Finegan (2002) examines some of the practical issues that are associated with development and delivery of an undergraduate business degree using web-based online learning. The study was based upon a real situation at RMIT University, and incorporates opinions, concerns, and viewpoints of the staff and students - both local and offshore – that represent some the major stakeholders in this project.

The study was based upon the observations and reflections of students and staff who have applied this technology, in the traditional classroom, and in the context of a Hong Kong-based accelerated program (Finegan, 2002). However, that study didn’t show any explanation of web-based learning terminologies and how it could be implemented and design especially for laypeople outside the e-learning and technology field. The current study fulfills this purpose.

## 6. Results

This study takes the form of an investigation that utilizes a “systems approach” that is suited for the analysis of such complex and “messy” situations.

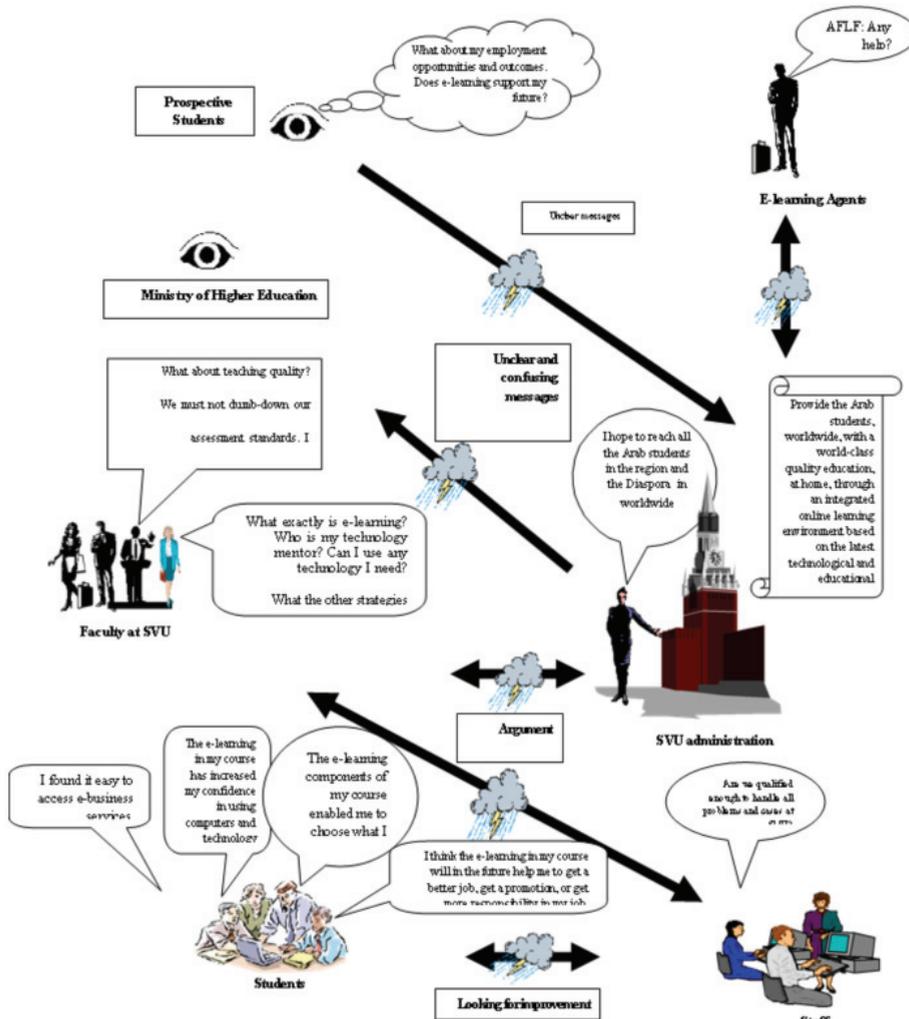
One approach that has become popular for analyzing the decision making processes that often accompany technological change is Checkland’s (1981) (Andrews, 2000) Soft Systems Methodology (SSM), which has been developed over 30 years. SSM was developed for analyzing complex problem situations and identifying acceptable improvements that could be made to those situations. (Atkinson et al, 2002). Soft systems thinking seeks to explore the messy problematic situations that arise in human activity. However, rather than reducing the complexity of the “mess” so that it can be modeled mathematically (hard systems), soft systems strive to learn from the different perceptions that exist in the minds of the different people involved in the situation (Checkland’s 1981). Therefore, the study as the previous one, applies Soft Systems Methodology (SSM), “a “systems approach” that is suited to the analysis of issues and stakeholders in complex and ‘messy’ situation.

All the SSM’s seven stages methodology were applied in identifying the main features of the SVU e-learning on the light of the AFLF and facilitating organizational change of e- learning on the students’ life of the SVU. It is most important to note that the sequence is not imposed upon the practitioner, study can commence at any stage, with iteration and backtracking as essential components. These seven stages are:

1. *The problem situation:* Senior managers in the SVU environment are continually under pressure to invest resources in technology- based approaches in teaching-learning environments. However, a number of variables affect student learning, such as teaching, feedback on performance, electronic business services, the worry of the future or attempting to balance school with part-time job. There is also resistance use some part of technology in some cases.

2. A rich picture: Pictures developed to summarize all that is known about the problem situation, structures, processes, relationships and issues using pictures instead of words. The key goal of this stage was to achieve a structured representation of the problematic situation in as neutral a way as possible. Figure 2 is the rich picture for our case. In this rich picture, all People and entities (SVU, AFLF, Staff, Students and Faculty), Issues expressed by people, Conflicts between them and the Processes has been illustrated

Figure 2 : Rich Picture of the e-learning in SVU



(Source : Checkland, 1981 p.163 and Checkland and Scholes, 1990 p: 28)

3. Root definitions of relevant systems : This was deduced from the rich picture of data. For example, the educational mission of SVU is to provide Arab students in the region and all over the world with International standards of Higher Education within an integrated pedagogical environment based on the latest technological developments. Other systems and frameworks [like AFLF] or pedagogical innovations that may be identified may be related to the ways resources are allocated
4. Deriving conceptual models: Based on the root definition, a model was drawn of the theoretical or conceptual construction defined in step 3.
5. Comparison of conceptual model with real-world situation: The conceptual model was compared to the real-world situation in the context of the relevant systems which was AFLF identified in step 3 or other relevant systems.
6. Debating feasible, desirable changes: These were discussed with involved constituencies, such as teachers, students, and administrators.
7. Taking action: Based on feedback from the results, the appropriate technological changes were implemented or appropriate procedures were proposed.

Techniques used to gather data from the SVU are included drawing on information from the SVU website as well the first visit SVU which was in January 2008. Also, the interviews with vice president of SVU and Information and Technology Director and the questionnaires sent to students who are using SVU e-learning system.

The study continues assessed SVU e-learning system and its success using data that measure:

- ▶ The uptake of e-learning, and the volume and sophistication of use by clients (individual learners).
- ▶ Impact: the degree to which the application of ICT to vocational learning has changed behaviors and outcomes for clients.

The study gathered a mix of quantitative and qualitative data, with the majority being of the latter type.

- ▶ Seeking basic data such as student's ages, backgrounds, reasons for choosing their course or major and opinions of e-business services offered by the university. This questionnaire was used to identify the sample of students that utilized SVU e-learning system;
- ▶ Seeking more detailed information about teaching strategies and other aspects of the SVU e-learning system such as e-learning experience and decisions on uptakes;

- ▶ To explore aspects including students' views about the strengths and weaknesses of SVU e-learning system, difficulties encountered during the learning, managerial issues, their views on the value of SVU e-learning system.
- ▶ To explore students' reason for taking the course or their major, their expectations of the course or major, their views on the style of teaching, and their likes and dislikes;
- ▶ To find out how SVU had informed and developed e-business services, what effect it had on their understanding of the major ideas about the course content covered.
- ▶ An analysis of a random sample (14%) of students' to look at how they rate the impact of their e-learning experience on their skills and confidence in using information and communications technology.

The study surveyed 702 currently enrolled students in all 13 accredited centers distributed all over Syria.

The following points summarize the main characteristics of the e-learning environment in SVU and how its students responded to the e-learning based on AFLF. This will answer clearly, the study questions stated earlier:

What are the main features of the e-learning environment in SVU?

And how have the students responded to SVU e-learning?

- ▶ The diversity of the participants affects the widespread interest in assessment:
- ▶ The contribution of e-learning to the participants' course was significant
- ▶ The effect of e-learning on the skills and the confidence of the respondents, was well-built with the use of information and communications technology
- ▶ The e-learning components and the course have a positive relationship
- ▶ E-learning supports the e-learning workforce
- ▶ The course delivery in e-learning was realized by the students
- ▶ E-learning assists the following main reasons in undertaking the course :
  - a. To get a job;
  - b. It was a requirement of my job;
  - c. I wanted extra skills for my job;
  - d. To get a better job or promotion;
  - e. To try for a different career;
  - f. For personal interest or self-development;
- ▶ E-learning facilitates the use of the e-business services

- ▶ The e-business services purposes are:
  - a. Enabled the students to choose what time of year they enrolled in their course;
  - b. Helped them to access other e-business services;
  - c. Were more efficient than using the telephone, personal attendance or written communication;

## 7. Conclusion and Future work

The study finished with that SSM allowed more introspection than was expected. The basic approach was not “problem solving” but finding a way to improve designing and implementing e-learning in SVU on the light of AFLF by proposing some important recommendations.

The survey showed that the SVU has acceptable e-learning environment that helps to achieve both the students and the organization goals in terms of e-business services. However, the survey recommends the SVU to further perfect their research in improving such field.

The SVU should focus on how to deploy the e-learning knowledge to the all students to maximize the outcomes and the benefits of it. For example, the SVU needs to activate the use of the online payments and electronic forms in e-learning and find out the solutions for the all security issues it concern.

The SVU should enhance the use of the e-business services by the students in some important fields i.e. how to use the digital scale compare to the traditional scale in figuring out the registration issues and how to invest the e-business services in finishing the acceptance requirements for the first time.

A limitation of this study was that the survey questions may not necessarily generalize the larger population of students. Also, the research questions are not enough to show a clear way for implementing and designing the e-learning at the SVU because the data used in the survey are limited.

To expand and support the findings of the present study, it is recommended that follow-up studies be conducted, with larger sample sizes and a broader diversity of the sample groups included in the population (teachers, technicians, and administrators) with more additional qualify and quantify sort of questions and use some other methodologies. Such studies would yield greater insight and perhaps and even closer convergence with findings and the implementation and design of the e-learning, the subject of this study.

## Acknowledgment

I would like to thank the talented students of the Syrian Virtual University (SVU) for many fruitful comments and for providing the main part of the data.

## REFERENCES

- Andrews, C.L., "Restoring legitimacy to the systems approach", *IEEE Technology and Society*. (2000) 19 (4) pp. 38-44.
- Atkinson, C., Eldabi, T. and Paul, R. , "Integrated approaches to health informatics research and development". *Logistics Information Management*, 2002, p.15 (2), pp.138-52.
- Bennett, J., "Evaluation Methods in Research", MPG Boos LTD, US, 2006, p.17.
- Britain, S., Liber, O., "A Framework for the Pedagogical Evaluation of Virtual Learning Environments", (2004). On-line]. Assessed on 02/08/2006. Available [[http://www.jisc.ac.uk/uploaded\\_documents/jtap-041.doc](http://www.jisc.ac.uk/uploaded_documents/jtap-041.doc)].
- Checkland, P. B., "Systems thinking, systems practice". New York: John Wiley & Sons. Cooper, L. (2000). On-line courses: Tips for making them work. *Journal of Instructional Science and Technology*, 3(3), (1981).
- Commonwealth of Australia, 2000. [On-line]. Assessed on 23/06/2008. Available <http://flexiblelearning.net.au>.
- Eduventures, "Service-Oriented Architecture and Web Services: The Next Big Thing in University Enterprise Computing", Boston, US, 2006, p.4. Available [www.elearning.ac.uk/resources/VLEFullReport08.doc](http://www.elearning.ac.uk/resources/VLEFullReport08.doc), 2004, p.48
- Finegan, F., "Web-based learning", RMIT, UK, 2002. [On-line]. Assessed on 02/08/2006. Available <http://ultibase.rmit.edu.au/Articles/nov02/finegan1.htm>
- Khan, B. H., and Ealy, D. , "A framework for Web-based authoring systems". In B. H. Khan, (Ed.), *Web-based training*, Englewood Cliffs, NJ: Educational Technology Publications, 2001, pp. 355-364.
- Mayer, R. E., "Elements of a science of e-learning". *Journal of Educational Computing Research*, 2003, p.29(3), 297-313.
- The Syrian Vertical University website, [On-line]. Assessed on 23/08/2008. Available <http://www.svuonline.org>.
- Polit, D. F. and Hungler, B. P., "Nursing Research: Principles and Methods", Philadelphia: J.B. Lippincott Company, US. .1995, p.101.
- Riddy, P., Fill, K. Childs, M. M. and Lewis, G., "Evaluation of Design & Implementation Tools for Learning", [On-line]. Assessed on 07/08/2008. Available <http://www.edit41.soton.ac.uk:8081/>

---

Robert, J. and Boxwell,Jr., New York: McGraw-Hill. 1994. pp. 225. ISBN 0-07-006899-2. [On-line]. Assessed on 20/02/2008. Available <http://www.amazon.com/Benchmarking-Competitive-Advantage-Robert-Boxwell/dp/0070068992>.

Wilson,S. ,Blinco,K. and Rehak,D., “Service-Oriented Frameworks: Modeling the infrastructure for the next generation of e-Learning Systems”, Creative Commons, US.2004,p.6

---

**COMPOSITE REPAIR SYSTEMS FOR STEEL PIPES**

---

**Abdallah A.K.AL-Maskari**

---

**ABSTRACT**

This article addresses the use of composite materials to repair tubular steel pipe works. Results of short term and long terms tests carried out in accordance with ISO/TS 24817 at ambient and elevated temperatures are presented. Results show that the composite repair systems are capable of resisting very high pressures at different test conditions. Impact tests and short term survival tests for non through wall defects were also investigated. All tests have passed the requirement of the standard without showing any sign of failure or damage at the pipe repair points. A fracture mechanics-based methodology for determining the blistering resistance of repairs when exposed to process media was examined as a method of characterising composite repair system. Fracture mechanics models were developed in this thesis to investigate the fracture toughness of composite repair/ steel interface by two methods; blow-off and push-off. Two test rigs were developed, a cylinder comprising a mechanical piston was designed and manufactures for blow-off tests on flat laminated plates, and a mechanical probe rig was manufactured for push-off tests. Results show that the fracture toughness is 10 times higher in push-off method than that of the blow off method. This was attributed to the crack region being in contact with pressurized fluid in push-off, whereas in the other test type the environment at the crack tip is air. Finite element analysis was used to model the blister formation resulting from the application of internal pressure or mechanical loads in pipes or flat plates. The blister was regarded as a circular fat disc and modeled using ANSYS program of 2-D ax symmetric solution to reduce the modeling and analysis time compared to 3-D solutions. The modeling has investigated the inter laminar stresses that could lead to premature failure of composite repair. Results show good agreement with both fracture mechanics modeling and experimental works.

---

# A VOTING MEDIAN BASE ALGORITHM FOR APPROXIMATE PERFORMANCE MONITORING OF WIRELESS SENSOR NETWORKS

---

**Yaqoob J. AL Raisi**

---

## ABSTRACT

Wireless Sensor Networks (WSNs) are expected to be a new, revolutionary technology in the same manner as the Internet. This is due to their special characteristics such as low power consumption, ad hoc operation, self-maintenance and many others features.

These special characteristics help in reducing the costs of network manufacture and implementation which extends their applications in a number of areas such as health and military services. Unfortunately, network resources such as memory, power and processing capacity constitute a serious constraint. In addition, they reduce the immunity of the network against external and internal impacts (such as electromagnetic interference) which make sensor node operations frequently deviate from the norm, degrading the WSNs functionality. In some cases the data collected by the network becomes unreliable; the monitoring of the phenomenon may even fail. To ensure the reliability of the network, several tools have been proposed to detect and isolate these deviations but most use relatively high levels of resources. In certain circumstances these state-of-the-art tools are unable to avoid the instant impact of data deviations on the accuracy of the collected data and on the networks functionality. This study overcomes these drawbacks by proposing a new, real-time, low resources usage, distributed performance algorithm that will monitor the accuracy of collected data and network functionality in large scale dense deployed WSNs. In order to achieve this, we have used the spatio-temporal correlation between the measurements of the neighbour nodes in large scale dense deployed WSNs. This correlation arises due to near proximity (of the nodes) and /or the slow characteristics change of monitored phenomenon. The proposed algorithm has been tested via simulation experiments using different simulated and real world application data sets. Moreover, it has been tested on a real network tested with Mote sensors using continuous reporting and event-driven applications. The results from these experiments showed a high rate of detection of changes in the reliability levels of data and in network performance. They also showed a high level of accuracy in terms of the detection of sensor faults. This, however, comes alongside certain limitations because of the use of simple passive analysis with the proposed algorithm.

---

# THE ROLE OF MANAGERS AND THEIR EFFECTIVENESS IN CIVIL SERVICE ORGANIZATIONS: A FIELD STUDY OF OMANI CIVIL SERVICE MANAGERS

---

**Hamood Said Hamed Al-Asmi**

---

## ABSTRACT

This study aims to determine the degree of effectiveness of Omani civil service managers (middle managers) in directing practices. It examines the impact of managers' personal characteristics, organizational factors and managers' cultural values on managers' effectiveness in the directing practices. Data was collected from Omani civil service servants from different organizations. Questionnaires were administered to 246 middle managers and 932 subordinates. 11 key informants were interviewed: five directors general, five middle managers and a consultant. Three statistical methods were used: multiple regression analysis aimed at identifying the major factors (independent variables) influencing middle managers' effectiveness (dependent variables); analysis of variance (ANOVA) for the purpose of exploring the differences in managers' effectiveness in the directing practices; and means and percentages for the purpose of the describing and analyzing descriptive results. The study found that managerial leadership practices are mostly affected by the educational level of managers and that managers' total experience and experience in the managerial position have an impact on the participation of subordinates in decision-making activities. However, the study found that none of the managers' personal characteristics had an effect on the encouragement of creativity of subordinates. The results indicated that organizational factors overall have no impact on managerial effectiveness in directing practices, partially it was found that the clarity and prioritization of organizational goals have an impact on the encouragement of subordinates' creativity. The study found that managerial effectiveness in directing practices are affected by cultural factors. For example various managerial practices such as delegation, motivation, decision-making and communication were found to be influenced by managers' social values, participation in social events and dealing with different classes of subordinates. The study also indicated that managerial effectiveness in directing practices is only affected by the problem solver role. This means that middle managers lack knowledge and skills relating to other managerial roles, namely informational, decision-maker and supervisory roles.

---

# AN EVALUATION OF THE INITIAL SCIENTIFIC FIELD TEACHER EDUCATION PROGRAMME IN THE COLLEGES OF EDUCATION, OMAN, MARCH 2006

---

By: Ahmed Ibrahim Alkindi

---

## ABSTRACT

The purpose of this study was to evaluate the initial teacher education programme which is specifically offered by four Omani colleges of education to prepare “scientific field” female teachers to teach science and mathematics subjects for pupils in Basic Education schools (Grades 1-4), ages of students from (6-10). This evaluation questions the adequacy of this programme to prepare qualified teachers to teach these subjects in a changing school system implementing a reformed Basic Education curriculum and programme. This system tends to transfer the teaching and learning process from the traditional learning environment to one that is a constructivist teaching environment. This study focuses on this programme’s defined teaching competencies and to what extent the participants perceived themselves properly trained with respect to these listed competencies in their professional practices. The study also spotlights student teachers’ and practicing teachers’ attitudes and motivation towards the teaching profession, and towards aspects of science and mathematics teaching in primary schools. The study tried to examine the extent of the constructivist approaches by student teachers and practicing teachers in their science and mathematics lessons.

The evaluation framework of the study was designed to conduct the research plan and to achieve its purposes. Several evaluation models were examined and they were critically reviewed. The review concluded that there is no one specific model which can be considered (the most) outstanding in terms of excellence, the selection of the evaluation model depends on factors such as the aim of the study, the nature of the programme, its context, and the targeted population. Thus the study constructed of three stages with findings from conducted evaluation instruments of each stage leading consequently to the next stage. In the first stage both questionnaires and semi-structured interviews are implemented, while observations with a checklist followed by follow-up interviews are conducted to gather information during the second stage. In the third stage, conversational open interviews are proceeded. Although the group focused upon for the study are the first stakeholders (the student teachers and practicing teachers), the research was extended to get information from other participants, educators from different positions, such as curriculum advisors, college lecturers, inspectors, head teachers and senior teachers.

---

The findings from this study indicated that in general, participants' considered of the importance of the some of the listed competencies. Even though there is some consensus of the importance for these competencies, there are some un-ignorable critics who view these competencies as being far away from the goals for the preparation of scientific field teachers for the reformed Basic Education schools, most of the listed competencies are supposed to be the foundations of the programme's components, and thus the colleges of education's courses are far too general. Findings from the questionnaire show that student teachers and practicing teachers amplified their self-rating of competence in the listed competencies because responses from the face-to-face, semi-structured interviews with them found divergence views. These differing views were supported by interviewed teacher educators and principals, and their opinions towards the insufficiency of the graduates of the colleges of education. The study found from the observations of some of the practicing teachers and student teachers observed while teaching science and mathematics lessons, and from the follow-up interviews, that there is very little sign of constructivist teaching approaches used in these lessons.

The study proposes recommendations which can improve and strengthen the preparation of cycle one scientific field teachers at the pre-service level and to future in-service so that teachers might better meet the range of work and responsibilities they are facing in the reformed Basic Education schools. Finally, it recommends areas for further research.

---

## CONFERENCES AND SYMPOSIUMS

### **FORUM: SUSTAINABLE DEVELOPMENT IN OMAN AND THE FRENCH EXPERTISE 15TH & 16TH NOVEMBER 2009, CROWNE PLAZA**

The Forum on “Sustainable Development and French Expertise”, held on November 15th and 16th 2009 under the patronage of H. H. Sayyid Hamoud bin Faysal Al Busaidi, Minister of Environment and Climate Affairs, was an initiative of the French embassy in Muscat, in partnership with the Environment Society of Oman (ESO).

In her opening speech, Ms. Malika Berak, Ambassador of France to the Sultanate of Oman evoked the Sultanate as a regional model for environment protection, Oman being the first country to create a ministry dedicated to these questions. She stressed that in the context of the U.N. Copenhagen Conference on Climate Change, France and Oman should work together to tackle issues related to sustainable development and implement a policy combining economic growth and environmental protection.

Mr. Mohammed bin Abdullah Al Muharrami, Director General of Environment in the Omani Ministry of Environment and Climate Affairs, outlined the main initiatives recently taken in Oman and stressed the commitment of the Sultanate, shown through the successive Five Year Plans, to reconcile economic growth and environmental preservation.

Jean-Christophe Peaucelle, Deputy Director of North Africa and Middle East at the French ministry of Foreign and European Affairs, quoted former President of the French Republic, Mr. Jacques Chirac, who declared in his opening speech in the Earth Summit of Johannesburg in 2003: “The house is on fire and many of us are not even aware”. The fight against global warming is not a fight against economic growth, said Peaucelle, “Sustainable development and global warming are not just scientific subjects, but also political challenges for states and for international community. “

Eventually, Sayyida Tania Al Said, President of ESO, explained that the aim of the Environment Society is providing awareness and ensuring that the natural heritage of Oman remains intact.

#### **DIGNITARIES PRESENT IN THE OFFICIAL OPENING :**

- ▶ H.H. Sayyid Tarik bin Shabib AL SAID, Patron of ESO
- ▶ H.H. Dr Mona Fahad Al Said, Assistant to the Vice Chancellor for External Cooperation, SQU.
- ▶ H.H. Sayyida Tania bint Shabib AL SAID, President ESO
- ▶ H.E. Sayyid Hamoud bin Fayçal AL BUSAIDI, Minister of Environment and Climate

---

## Affairs

- ▶ H.E. Cheikh Abdallah bin Salim AL RAWAS, Minister of Municipalities and Water Resources
- ▶ H.E. Mr. Mohammed AL ARAIMI, Under Secretary, Climate Affairs
- ▶ H.E. Mr. Khalil AL KHONJI, President OCCI
- ▶ H.E. Mohammed Al Mahrouqui, President, Authority of Water and Electricity
- ▶ H.E. Dr. Ali bin Saud Al Bemani, SQU Vice - Chancellor
- ▶ Mr. Mohammed AL RIYAMI, Undersecretary Head of Office, Ministry of Defence.

## FORUM OBJECTIVES

Within the context of the Copenhagen summit on climate change, held from 7 to 19 December 2009, the main objective of this Forum was to share Omani and French experiences in terms of sustainable development to strengthen the bilateral cooperation in fields of waste management, water resources, marine pollution and renewable energies promotion. The Forum intended to gather scientists, institutional representatives and French and Omani private companies, to produce a global reflection on sustainable development through four round tables dedicated to these subjects. Over 200 people attended each of them.

Twenty leading French companies and prominent research institutions specialised in environmental issues, such as CNRS, PROMES, CEPPOL, VEOLIA, SUEZ, and the French Marine Headquarters . took part in the debate

The Forum has been sponsored by GDF-Suez and EDF-énergies nouvelles as Gold sponsors; Sharquiyah Desalination, Air Liquide and Sogreah as Silver sponsors; and Socat, Exploration Consultants, Oman Arab Bank, Vinci construction, Muriya and Fair Trade as Bronze sponsors.

Following the success of this operation, the Embassy of France will organize a symposium focusing on green architecture and eco-tourism from the 23d to the 26th of April 2010. Workshops will bring together Omani and French architects (ten French architecture agencies will be invited), all specialized in green architecture and eco-tourism. In parallel, cultural events will be organised .

## CULTURAL ACTIVITIES

Along with the Forum, the Embassy of France organised cultural events related to sustainable development: Outdoor screening of three documentaries in the French-Omani center, from 9 to 11 november 2009, with the last exhibition of Yann Arthus Bertrand.

- 
- ▶ Home Yann Arthus – Bertrand
  - ▶ Darwin's Nightmare - Hubert Sauper
  - ▶ TARA, journey to the heart of the Climate Change Machine - Emmanuel Roblin and Thierry Ragobert

Photographic exhibition "Trees of Eternity" by Suzanne Held presented at from November 14 to December 15, 2009 in Bait Fransa, Omani-French museum

Inaugurated in the presence of Ms. Held, a world wide famous reporter, the opening of the exhibition has attracted over one hundred people. The space was dressed in 15 beautiful photographs of Ms. Held and the sound work "forest acousmatic", by Floy Krouchi and Nicolas Losson recreating the atmosphere of a forest in the entire house gardens.

Lectures on Green Architecture delivered by Aline Asmar d'Amman on 16 and 17 November, 2009 at the Qurum Cultural Club and CFO

These conferences highlighted the innovations of the great names of French Green Architecture (Jacques Ferrier, Jean Nouvel, Moatti and Rivière).

## **Guidelines to Authors and Submission of Manuscripts**

1. All contributions will be evaluated by at least two independent referees. Papers should be original and should not have been published or under consideration for publication elsewhere in any form.
2. Contributions submitted for publication should be in English.
3. Papers should be sent on a disk together with three hard copies.
4. Author(s) should provide abstracts in English of up to 150 words.
5. Contributions should be no longer than 30 pages, not exceeding 300 words per page.
6. Author(s) should submit a request for publishing his/ her contribution stating that it has not been published before.
7. The author(s) should type the following on a separate page: title of the paper, the name(s), postal and e. mail address(s) of the author(s), and the telephone number(s). Title of the paper should appear on the first page.
8. Applied and academic papers in the fields of Science in communication, design, IT, international business, engineering & English language will be published in the periodical.
9. Notes, footnotes and endnotes are listed at the end of the paper in numerical order as they appear in the text.
10. Full bibliographical details of references should be given and listed in alphabetical order as follows: reference to books should be given in this order: initials and last name(s) of author(s), year of publication, title of the book, publishing firm or press, Place of publication. Reference to articles should be in this order: Title of journal, name of the author, title of article, place of publication, journal number, and number of pages. Reference to dissertations should be in this order: name of the author, year of publication, title of dissertation or thesis, college, university, place of publication.
11. Publications are not returned to authors whether published or not in the periodical.
12. Contributions that do not conform to the above mentioned conditions will be ignored.
13. All papers should be addressed to the editor- in- chief.

---

### **Submissions should be sent by post or email to the Editors:**

The Editor in Chief, the Directorate General of Colleges of Applied Sciences  
Ministry of Higher Education, The Sultanate of Oman.  
P.O. Box 82, Ruwi, Postal Code 112, Tel.: 24486333, Fax: 24485378.  
Website: [www.cas.edu.om](http://www.cas.edu.om). E-mail: [cas\\_journal@mohe.gov.om](mailto:cas_journal@mohe.gov.om)

---

- Promoting Better Quality Teaching at University: The Importance of Understanding Teaching Conception .
- Qualitative Characteristics of Financial Reporting: The Changing Profession.
- Economic and Manufacturing Development in Oman.
- E-Learning Designing and Implementation based on the Australian Flexible Learning Framework (AFLF).

