

DIFFUSION OF SOCIAL COGNITIVE THEORY IN INFORMATION SYSTEMS RESEARCH: A BIBLIOMETRIC STUDY

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Abstract

Recently, Social Cognitive theory (SCT) has been widely adapted across various disciplines in business and management as well as Information Systems (IS) research. In IS, the use of SCT remains in its early stages. Few bibliometric analyses have been published on mapping theories across previous literature. However, to date factors related to literature review mapping in relation to SCT in IS have not been much examined. This paper aims to investigate the exploitation of SCT in IS research based on bibliometric analysis. In this study a bibliometric analysis is conducted on previous literature reviews/abstracts based on Association of Business Schools (ABS) journal rankings from Information Management field perspective. 62 articles in Information Management field have utilised SCT were published in 17 (out of 53 journals) between 1995 and 2010. The study findings has identified that the organisation/firm and actors as a unit of analysis, positivist paradigm, empirical and quantitative research as well as survey method were used significantly in combination with SCT in IS studies. This bibliometric study will provide the needed platform for a better understanding of high quality research activities. Consequently, this can be used as an indicator to measure research quality and the impact of future direction and exploitation of SCT in IS research.

Keywords: Social cognitive theory; bibliometric; information systems; literature review;

1 INTRODUCTION

The Association of College & Research Libraries (2000) defines information literacy as “a set of abilities requiring individuals to ‘recognize when information is needed and have the ability to locate, evaluate, and use effectively the needed information’”. However, while the Standards state themselves to be “common to all disciplines, to all learning environments, and to all levels of education”, they are generally interpreted within the narrower focus of an education environment, and more specifically most often within the university (Hoyer, 2011). Coiera (2003) emphasised the role of interaction between human and computational agents and concluded that the characteristics of individual technologies, psychological and social issues can be combined to explain the overall decisions that individuals make when using technologies so that we can make robust predictions about how a group as whole will interact, technology by itself does not mediate the new interaction. Hence, the argument is understanding changing in human behaviour and setting out process for interaction so that people can follow will allow new technologies to be introduced into the system of an organisation.

Nevertheless, in a world of rapid change, and technology-driven societies few theories and models have been introduced in the recent years to explain human behaviour such as theory of planned behaviour (Ajzen, 1991) and Unified Theory of Acceptance and Use of Technology (UTAUT) model (Venkatesh et al., 2003). To some extent, quite a few of these theories initiate to a range of challenges

and opportunities in order to understand human nature so that they can improve the provision for both private and public sector in a similar way. Social Cognitive theory (SCT) is one of the psychological theories that associated with the theorist Albert Bandura (1986) and little is known about utilising SCT in Information Systems (IS). Bandura (1986) pointed out that technologies are transforming the nature and the scope of human influences in the way they interact with each other and looked at human functioning from abroad social perspective which requires more investigating into multidisciplinary research bearing on a wide range of psychological phenomena. SCT is a widely accepted model of individual behaviour (Chan and Lu, 2004) as it examines the reasons why individuals adopt certain behaviours (Bandura, 1986). SCT has been utilized in a number of disciplines due to its dynamic nature as it considers human behaviour to constantly change (Kock, 2004). It has been applied in business through the analysis of organizational management (Wood and Bandura, 1989), task complexity (Bolt et al., 2001) and technological innovation adoption (Compeau et al., 1999).

The aforementioned studies clearly express the importance of SCT in understanding users' efficacy, expectations and experiences in information technology. Therefore, reviewing and profiling the existing research literature that has utilised SCT in IS is likely to be of benefit to researchers in assisting them to identify existing strengths and weaknesses of the other relevant research, in promoting discussion on critical issues in this area of research, and in assisting in the identification of alternative theoretical and methodological perspectives (Avison et al., 2008; Palvia & Pinjani, 2007; Dwivedi & Kuljis, 2008; Weerakkody et al., 2009). Given the significance and quality of SCT in IS studies that has been published in high impact IS journals in recent years, to date that there have been no reviews or meta-analysis studies focusing on the bibliometrics analysis or the use of the bibliographic information such as title, authors and dates to measure various aspects of SCT literature of scholarly endeavour. Bibliometric analysis can assist in reflecting research quality through establishing comprehensive indicators that can facilitate a better understanding for researchers (Evidence Report, 2007). Therefore, the intention is to provide a profile of SCT diffusion in IS research according to *bibliometric-based* indicators rather than peer review. To the authors knowledge there has been no studies exist that focus primarily on reviewing the literature relating to the use of SCT from an information systems perspective. Meta analysis can help to obtain a more precise estimate of relationships between research themes, and can assist in finding patterns across studies and determining future research directions (Palvia et al., 2007; Avison et al., 2008).

This paper aims to provide a comprehensive review of SCT in information systems research to establish a better understanding of the current trends and use of this theory in information systems based on Association of Business Schools (ABS) journals ranking. The core focus in this study will first begin in identifying the various related variables (such as targeted journals and year of publication) associated with publications that utilise SCT as the foundation for their studies. This will help then, in classifying these relevant publications according to the units of analysis commonly investigated. After that, these publications are classified according to their theoretical and methodological approaches used. Clearly, this research is conducted over the period between 1995-2010 in which it covers all relevant 53 information management field journals. The remainder of this paper is structured as follows. In the next section, an overview of the existing literature on social cognitive with a closer look on its utilisation in information systems research. In section three a discussion of the method employed in the analysis of the trends of diffusion SCT is presented. Findings and discussion then are presented in section four on the use of SCT in IS research. Finally, section five presents concluding remarks of the presented work as well as its limitation.

2 UTILISING SOCIAL COGNITIVE THEORY IN IS RESEARCH: CRITICAL PERSPECTIVE

Cognitive strategies have been utilised to maintain a high level of research thinking (Magno, 2011). This aimed at enabling users to create a successful performance in their research work throughout their cognitive engagements. Feist (2006) emphasised the importance of scientific thought from a psychological perspectives. According to Magno (2011) a psychological perspectives in the study of scientific thought can support in 1) providing models to demonstrate further explanation, 2) derive processes for educational perspectives, 3) emphasise skills and scientific thinking for practitioners in

science, and 4) integrate other psychological variables to create theories to explain it. Therefore, the appearance of new technologies and the continued evolution of organisations or the complexity per se of theory may lead some theoreticians to show more interest in problem-driven work than in paradigm-driven work (Davis & Marquis, 2005). Thus, technology does not force extensive distribution of specific knowledge without considering thought and actions that SCT emphasised (Bandura, 1986). Hence' the cognitive, individual, social and technological contents of bounded rationality, opportunism and specific investment, plus social and institutional relations stemming from opportunism and competition in the markets, lead to forms of governance that consist of different forms of hierarchical, social and institutional relations' (Bonet, et al., 2011). Developing, for example, users with more scientific skills is usually accompanied by training with research skills (Pine & Aschbacher, 2006). Ivcevic and Mayer (2007) recognised the need for self-regulation components among scholars such as risk taking than other creative types (conventional, everyday creative, artist), they found that the scholar type is high on self-regulation requirement which is explained in SCT.

Bandura (1986) stated "A theory that denies that thoughts can regulate actions does not lend itself readily to the explanation of complex human behaviour". Bandura explained and based on social cognitive view that inner forces and external stimuli do not act as a driver for human functioning, rather than that, a model of triadic reciprocity (Figure 1) in which behaviour, cognitive and other personal factors, and environmental events all operate as interacting determinants of each other where a number of basic capabilities such as symbolizing, forethought, vicarious, self-regulatory, and the nature of human nature terms defines the nature of persons (Bandura, 1986). SCT favours a conception of interaction based on triadic reciprocity (Bandura, 1977a, 1978a), where this interaction resulting in a new practices such as E-government/ E-Business/ E-commerce activities and is seen as a change. This new practice initially creates negative effects that serve as barriers to change in its early stages since people are reluctant to go through the tedious process of developing new habits and when there is delay between innovative behaviour and its benefits, willingness to try new practice is reduced because the outcome expectations influence performance as well as choice (Bandura, 1986). Later on, Henry and Stone (1999) confirmed Bandura with respect to the use of Information Technology (IT) and found that outcome expectations do influence behaviour as a higher score on outcome expectancy is linked to a higher level of use of IT. The outcome values, expectancy or self-efficacy are seen as an internal stimuli for an individual besides the external ones, therefore, resorting these stimuli influence cognition and behavioural intention based on the ability of each individual in doing a certain action (Bandura, 1986). A complexity in computer training has been examined and confirmed that self-efficacy has a greater positive effect on behaviour based on the level of the task complexity, a higher self-efficacy associated positively with task complexity (Bolt et al., 2001). According to (Huang et al., 2009), message involvement, social interaction tie, affection outcome expectations and message passing self-efficacy exert significant influences on pass-along email intentions (PAEIs).

SCT premise that individuals can influence their actions (McCormick & Martinko, 2004) which offers an opportunity for the media to exposure influences behavioural intent (Kaufman, 1991). Bandura (2001) argued that outcome expectancy linked with media and modelling as information sources affect the decision process. The major premise of modelling is that people learn their behaviours by watching other people (Bandura, 1986). Such behaviour in using ICT required a study in order to realise the outcome of each experience based on self experience or just by observing others. Bandura (1986) emphasised the role of computer self-efficacy and its effects on individual experience which in turn affect other factors such as perceived ease of use and system usage. Individuals acquire new ideas and knowledge of new practices from their environment, through the media and by observing other people (Bandura, 1986). For this matter cognitive science is being frequently employed in information studies research and practice and has a number of unexpected similarities both in broad and specific terms (Holland, 2006). Cognitive belongs to personal factors based on Bandura (1986), therefore, Kotler et al., (2005) mentioned that Information System is seen as a tool for integrating environment, citizen and organisation in which entities can compete by utilising Internet revolution in the area of globalisation and emphasised the major role of an individual (consumer/citizen/user) behaviour as a driver in these activities from a marketing perspective. Thus, emphasizes that the adoption process of technology involves encouraging individuals to ensure that they will have the requisite skills and

confidence to use a new or existing technology (Compeau *et al*, 1999). Thus, ICT activities are subject to psychological factors in addition to other factors. It is a multi-dimensional construct with overall risk being subdivided into performance, physical, financial, psychological, social loss (Greatorex, & Mitchell, 1994). For this reason, it is crucial to understand the user experience through time regarding to his or her environment and behaviour as what SCT emphasise (Bandura, 1986). SCT has been adding a significant contribution to all disciplines of knowledge with more than 6000 articles, the field of Information System have not been widely discussed by researchers in the needed depth, which drive this study to emphasise this matter by doing meta-analytic or review on SCT profile with respect to utilising this theory in Information System research.

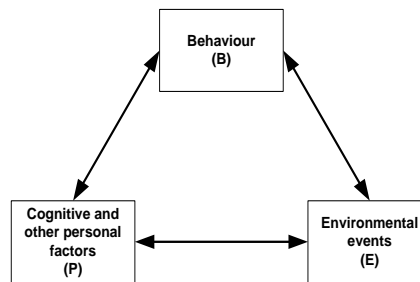


Figure 1 Schematization of the relations between the three of determinants in triadic reciprocal causation (Bandura, 1986)

3 METHODS

This study has adopted the use of bibliometric analysis through using the academic journals database provided by Thomson Scientific, previously known as the Institute for Scientific Information (ISI) as an element of a web of science[®] product (Weerakkody *et al.*, 2009). Therefore, this study retrieved data from the ISI Web of KnowledgeSM which accesses multidisciplinary databases of bibliography information of thousands scholarly journals by its indexed structure which require a key-field for a column of a database table and allow an efficient access of the required records in the targeted database. To make sure that our results are relevant to the core of this study, the key-word “Social Cognitive Theory” in the search field for the topic field has been used. The result displayed 6,419 articles in all databases on 16th November, 2010 which reflects how widely SCT is diffused among other disciplines. Nonetheless, because the objectives of this research are mainly focusing on titles from Information Management Journals’ in the ABS ranking, we associated the key-word with the name of the journals of Information Management field correspondingly within the search engine. For example, the research topic is ‘Social Cognitive Theory’ and ‘Journal of Management Information Systems’ as a publication name.

The Association of the Business Schools Journal Rankings (ABS) 2010 (ABS, 2010), is a hybrid based partly upon peer review which provides a guide to the range, subject matter and relative quality of journals in the are of business and management academics publish their research results has already refined the journals in term of quality which adds more value to the study by restricting the search activities to a single publication database. This guide can provide an indication of the best journals so that authors can decide what to read and at the same time inform the decision making processes. It has some limitation and problems such as incomplete coverage, non-recognition of differences in epistemological traditions, herding, content bias and sometimes game playing and variation in maturity with different fields. Moreover, their rank is not fixed but reviewed manually. ABS standards reflect the citation impact factors based on the quality ranking level (1, 2, 3, 4 or 4*) where few journals in category one carry a citation impact factors and the highest is 4* which is a World Elite Journals which has the highest submission rates with lowest rate of acceptance after papers are heavily refereed (ABS, 2010).

Therefore, in this study SCT was examined along with relevant articles in the Information Management field within ABS 2010 journals ranking. This is expected to provide the needed support

to create a profile of SCT in Information Management. Therefore, all papers published through the past years have been thoroughly examined between the years of 1995 to 2010. Based on source, grade, general category, subject area, authors, and time cited, and volume, issue and publication year relevant research articles have been recorded on a spreadsheet. Moreover, the name of each sub-field journal under the field Information Management recorded with number of articles and other details. Unit of analysis, Paradigm, methodology and methods have been recorded within the designated sections in the spreadsheet.

4 FINDINGS AND DISCUSSION

This longitudinal study is used to map change in information systems research. The first result appears was in 1995 until the last result in 2010. Interestingly, it was noticed that the years of 1996 and 1997 has no records that utilised SCT in information systems research. Therefore, in order to detect patterns of association, cross-sectional design is needed for collecting the necessary data for more than one case, so that the quantifiable data can be examined (Bryman and Bell, 2007). The following results are very transparent records where all data clearly set out which causes this analysis to an objective method of analysis.

The 62 articles encourage us to be undertaking them more in-depth of their literature review. Various fields have been selected as shown on the tables in this study such as journal title, counts, fields, grades, year, citation, and the percentage of the corresponding field with other field. A top cited article is being displayed according to the year of the article. Moreover, a general category displayed that only Science & Technology and Social Science are categorised in our result. A normal count approached used in order to count each category or attribute in each field (Palvia & Pinjani, 2007; Galliers & Whitley, 2007; Dwivedi & Kuljis, 2008; Weerakkody et al., 2009).

This study employed a combination of bibliometric and meta- analysis (Williams et al., 2009; Palvia et al., 2007; Avison et al., 2008; Dwivedi and Kuljis, 2008; Dwivedi et al., 2009; Weerakkody et al., 2009) as a way of grouping the diffusion of SCT in the Information Management field (see Table 1). The reason of selecting only field because it is the most associated with our target analysis which is Information System with respect to managerial related issues. Thus, will offer the research with more in-depth sympathetic of the use of SCT in IS with respect to ABS 2010 journal ranking in Information management field by then looking upon this mutual relationship between SCT and IS with favour toward understanding this study.

SL	ABS Journal title (Field)	ABS Information Management Journals (Sub-field)	Number of SCT Articles	Journals (ABS only) associated with SCT	Number of SCT (IS) Articles	% of all articles
2	Information Management	53	65	17	62	1%
* SCT Articles in all Journals = 6419						

Table 1 Diffusion and use of SCT according to Information Management field (ABS, 2010)

Analysing only ABS 2010 journal ranking guide on Information Management field help in offering enough transparency to this study as this ranking targets high impact journals in IS that can be also found on ISI Web of Knowledge database. The research topic that was searched is ‘Social Cognitive Theory’ and ‘Management Information’ as the field name as presented in Table 1¹. The database allows more precise searches using the above mentioned combinations key words which helps in adding more reliability to this study. English language has been used and only articles in this database

¹ Source: Web of Science® Database.

and sometimes, the authors forced to use hyphens when entering specific terms for the topics or author's name.

The Information Management field contains 53 journals classified as grade 1, 2, 3 and 4 plus 4* based on ABS Journals guide 2010 as outlined in Figure 2. The results distracted only 65 articles associated with SCT. These articles have been refined and the decision has been made to exclude 3 of them due irrelevant matter with SCT. Therefore, only those articles are relevant to the present study being considered after examining the full version of the papers which resulted in only 62 articles found in 17 journals in Information Management journal's title as shown in Table 1 above. The 62 articles make it possible for the authors to achieve the objectives by obtaining detailed information of the year of the publication, author's name, citation and other information. The obtained data have been carefully captured and plotted using Excel 2007.

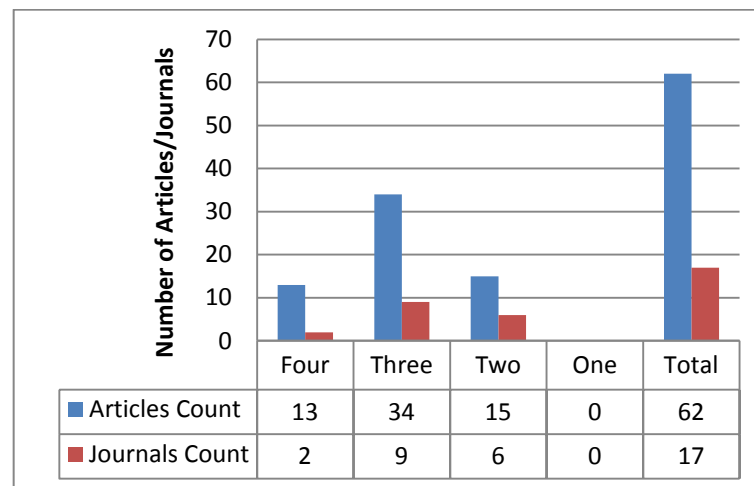


Figure 2 Distribution of utilized SCT in IS Research based on ABS Journal Rankings

Diffusion and Use of social cognitive theory: Publication Year and Citations

In table 4, the results indicates the number of articles published in Information Management field Journals per year and the number of citation of each year respectively according to that year and the third column shows the percentage of the citations of this year to the total citation which is 2543. The forth column presented the name of the most cited authors of each year and how many times this author/s got cited right beside the names. It appears that the first citation started in the year of 1995 which reflect the revolution of computer industry. The most cited authors is Venkatesh et al., (2003) with 974 counts which reveal the formulation of the unified model, so called the Unified Theory of Acceptance and Use of Technology (UTAUT). The second most cited is Compeau et al., (1999) with 276 counts. This citation does give an impression where there is a link between the number of articles and the number of citation, also, it provides in indication of how far is the discussion among the scholars in such subject. There is also, a sign of lower citation in the recent years such as 2009 and 2010 which means the relay on citation are almost from the last three years and before.

Year	Articles published/Year	Citation of Articles published/Year	% Total Citation/Year	Most Cited Authors	Citation Count
2010	9	1	0.00	(Ambrose and Chiravuri, 2010)	1
2009	9	13	0.01	(Gu et al., 2009)	5
2008	9	52	0.02	(Wang et al., 2008)	14
2007	9	107	0.04	(Hsu et al., 2007)	54
2006	5	157	0.06	(Chiu et al., 2006)	75

2005	4	137	0.05	(Jasperson <i>et al.</i> , 2005)	102
2004	1	11	0.00	(Onwuegbuzie and Jiao, 2004)	11
2003	7	1228	0.48	(Venkatesh <i>et al.</i> , 2003)	974
2002	3	113	0.04	(Thatcher and Perrewew, 2002)	57
2001	1	44	0.02	(Davis and Wiedenbeck, 2001)	32
2000	1	61	0.02	(Johnson and Marakas, 2000)	61
1999	2	280	0.11	(Compeau <i>et al.</i> , 1999)	276
1998	1	131	0.05	(Marakas <i>et al.</i> , 1998)	131
1997	0	0	0.00	NA	0
1996	0	0	0.00	NA	0
1995	1	208	0.08	(Compeau and Higgins, 1995)	208
Total:	62	2543	1.00		2001

Table 4 Diffusion and use of SCT according to years as well as the citation for each year.

Diffusion and use of social cognitive theory: Unit/Level of Analysis

The results (see Table 5) show the distribution of SCT among the 62 articles based on unit of analysis of each articles (Dwivedi *et al.*, 2008; Weerakkody *et al.*, 2009). It seems that the organisational level is the dominant in this analysis, 23 articles, followed by actors 19 articles. Obviously, what is to be counted in these articles affected by the organisation decision and attention followed by the actors. This would emphasise the relationship between the organisation and the individual within or out of the organisation. In other words, there should be some level of understanding between actors and organisation. From IS perspective, all applications are subject to user experience which force studies to build on finding a match between them. For example, software should match user ability as well expectations otherwise, they will need training. Nevertheless, at some point, there is a need for greater discrimination among various units of analysis in order to maintain answers for these studies.

Unit Of Analysis	Count	%
Organisation/Firm	23	37
Country	2	3
Theory	2	3
Actors	19	31
Systems	6	10
Industry	0	0
Society	5	8
SMEs	0	0
Stakeholders	2	3
Family	2	3
Global Projects	0	0
Un Known	1	2
Total	62	

Table 5 Unit of analysis categories

Diffusion and use of social cognitive theory: Research Paradigm

The numbers in Table 6 presents the research paradigm that is adapted from Avison et al. (2008), Dwivedi et al.(2008), Weerakkody et al. (2009). Clearly Positivism (C= 39) is the dominant research paradigm used, this followed by 'Descriptive/Conceptual/Theoretical' (C=13) and by then 'Interpretive' (C= 8). However, two papers research paradigm were not known. Clearly, the output of Table 6 indicates how research is being optimised in this area. This aims to provide some guidance on results interpretation. However, there might be a need to explore the possibility of utilising positivistic as well interpretivism paradigms together as suggested by Bandura (1986) and Mullen et al. (2009) improve and clarify any ambiguity in the research

Research Paradigm	Count	%
Positivist	39	63
Descriptive/Conceptual/Theoretical	13	21
Interpretive	8	13
Not Known	2	3
Total:	62	

Table 6 Research paradigm

Research Methodology: Empirical versus Non-Empirical

The data presented in Table 7 indicate that 'Empirical' studies (C= 48) where the 'Non-Empirical' studies listed as (C= 12) (adapted from Avison et al., 2008; Dwivedi et al., 2008; Weerakkody et al. 2009). However, two papers research paradigm were not known. Therefore, it is expected to see a clear match between the paradigms and the corresponding research methods used. For example, positivist and Interpretive used empirical methodology.

Research methodology	Count	%
Empirical	48	77
Non-empirical	12	19
Not Known	2	3
Total:	62	

Table 7 Research methodology - empirical vs. non-empirical

Research methodology: Quantitative versus Qualitative

In Table 8, the data indicated that quantitative research methodology (Avison et al., 2008; Dwivedi et al., 2008; Weerakkody et al., 2009) is the dominant (C= 37) followed by Conceptual/Theoretical/Meta-analysis (C= 12), and qualitative (C= 5). There are mixed studies (C= 6) and Non-Known (C=2). Clearly, quantitative methods and techniques provides the needed explanation, presentation, description in addition to examination of relationships and trends within the utilisation of SCT in IS research (Saunders et al., 2007).

Research methodology	Count	%
Quantitative	37	60
Conceptual/Theoretical/Meta-analysis	12	19
Qualitative	5	8
Mixed	6	10

Not Known	2	3
Total:	62	

Table 8 Research methodology - quantitative vs. qualitative

Research methods used in IS Articles

In Table 9. the survey research methods has been used in (C= 33) articles which is around half of the total articles, followed by Library research/Literature analysis/Frameworks/Conceptual method (C= 12). The rest of articles ranged between 1-5 for each of the other research methods (Avison et al., 2008; Dwivedi et al., 2008; 2009; Williams et al., 2009; Weerakkody et al., 2009). Evidently, survey is the clearest strategy used in previous studies, which enabled answering relevant research question(s). Thus, this amplifies that the radical change in Information Technology restricts the amount of time and resources to force scholars for selecting the survey as a best choice for research strategy.

Research method	Count	%
Survey	33	51
Library research/Literature analysis/Frameworks/Conceptual method	12	18
Case study	3	5
Secondary data analysis	1	2
Others	1	2
Content analysis	2	3
Multi-methods	1	2
Interview	2	3
Experiment	5	8
Field study	3	5
Mathematical model		0
Not Known	2	3
Total:	65	

Table 9 Research methods

5 CONCLUSION

This article discussed the use of the SCT in current IS research with respect to management related issues which direct our intention to enrich the literature review for further investigation in this ‘state of play’ studies. This systematic, comprehensive longitudinal review (between 1995 and 2010) of 62 of a highly quality rated articles based on ABS (2010) provides the position and the impact of the utilisation of SCT on IS with respect to managerial related issues. After refining the 6, 419 articles to only 62 articles in 16 highly rated articles according to ABS (2010) and presenting them sequentially based on diffusion according to the Information Management field, their grades which is based on the four levels of classifications, their general category, subject area, years and citation, unit of analysis, research paradigm and methods.

The study findings has identified that the organisation/firm and actors as a unit of analysis, positivist paradigm, empirical and quantitative research as well as survey method were used significantly in combination with SCT in IS studies. The use of SCT in IS with respect to information management related issues is limited comparing to other subjects areas when considering it’s widely used in other disciplines. It is also noted that the theory offers a good conceptual basis for studying both individual and organisation and the environment surrounding them. It offers a good understanding for the

situation occurs and the learning process which is very important for training and learning new skills that is critical to utilising IS research. In addition, the authors also noted that the multi-discipline/intra-discipline in utilising SCT and IS can provide the needed foundations to introduce new models that aim to enhance and improve users experiences as well expectations. It can noticed that the diffusion and use of SCT in the information and management research domain has varied across the past 15 year. Clearly, the distribution of bibliometrics across this period verifies the various development stages of SCT in IS. This started by providing the understanding and the feasibility of SCT in IS research, then moved to clarification, then adoption, post adoption and finally towards an integration stage across cross-disciplinary and inter-disciplinary IS research. The results clarified the challenges of utilising IS in the research as a learning process through years which verify the needs for more collaborative initiatives among researchers within interdisciplinary research. The use of SCT in IS with respect to managerial issues revealed that utilising IS for management perspectives is influenced by other factors such as understanding personal and behavioural issues as well as environmental factors. Finally, it is important to note that this study uses only the keyword 'Social Cognitive Theory' in the selected database which means that there are many of articles that is included in this study especially that we are using only information management field from the ABS (2010) journals ranking. This is expected to impact the future direction and exploitation of SCT in information systems research.

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