

Acknowledgement

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Sincerely,

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Conference Paper

The Impact of Neuromarketing Advertising on Children: Intended and Unintended Effects

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Abstract

Purpose: This research is aimed at assessing the impact of neuromarketing advertisements on children. This is carried out by establishing the two types of effects that can occur as a result of neuromarketing advertising: intended and unintended effects.

Design/Methodology/approach: The researcher intends to use a quantitative approach.

Findings/expected outcomes: Findings will shed the light on which factors (intended vs. unintended) have more power on children. Based on that, conclusions, recommendations will be established and raised to concerned parties.

Practical implications /social implications: Children are the most impressionable sector of our society. By performing this research, neuromarketing can now have the chance to prove that it can be used for the greater good if in fact proven to have more power as an intended effect advertising tool to aspire change.

Originality/Value: The research present literature review and a conceptual framework to assess those effects on children in the context of neuromarketing. These effects has not been tested in the context of neuromarketing as well as their collective impact on those children.

Keywords: Neuromarketing; Advertising; Intended effects; Unintended Effect; Children

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1. Introduction

Over the years, marketing has aimed at better anticipation of the effectiveness of advertising campaigns. Morin (2011) states in his article that traditional techniques have failed to predict effectiveness with accuracy since emotions have a strong effect on how consumers process images, and understand and model cognitive reactions to messages.

In addition, the amount of data consumers are subjected to is gigantic, and the brain's ability to perform analysis is finite. Out of an average of 11 million bits of data that consumers are subjected to through their senses per second, only 50 bits of that data are analyzed by the brain, letting the rest go by ignored (Wilson, 2002). This made companies thirsty for the attention of the consumers and lead to the use of neural

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approaches to construct more effective advertisement or even reach consumers at a subconscious level if possible (Fugate, 2007).

Late years have seen a development in the capacities of neuroscientists to consider cortical activities regarding recurrence and revelations. Surely, the late procedures of functional imaging have allowed a profound learning in neuroscience and an exactness of cerebrum zones in charge of a delights and feelings. Be that as it may, most sociologies have yet to perceive neuroimaging as a standard method for examination and marketing research has been far slower to wake up to the benefit from this system (Lee, Broderick, and Chamberlain, 2007). Financial analysts were the first to propose the "neuroeconomics" (Zak, 2004; Kenning and Plassmann, 2005; Rustichini, 2005). The point was to better comprehend the choice procedure or decision making (Droulers and Rouillet, 2006). Late years have seen the advancement of another discipline which can be named as "neuromarketing" or "NM". The objective of this rising discipline is the exchange of knowledge from neurology to explore the buying behavior by applying neuroscientific strategies to marketing important issues (Stoll et al., 2008). Consequently, we can consider that the NM is the place marketing and neuroscience meet.

1.1. Background of the study

Much like any new field, NM has its promoters and opponents. The French Parliament has revised its 2004 rules on bioethics. The result, passed in 2011, is a section of the law that simply states: "Brain-imaging methods can be used only for medical or scientific research purposes or in the context of court expertise" (Oullier 2013). The revised law effectively bans the commercial use of neuroimaging in France, although NM companies have only to cross the border to continue their business. Thus, in France, pursuing any commercial research and any act of commercialization by using brain imaging techniques is banned. However, it is still possible to carry out NM research by means of biometric techniques such as eye-tracking and galvanic skin response etc. This revision caused serious debates among neuroscientists and politicians about the exact position of neuroimaging technologies, and it was also stressed that the use of neuroimaging techniques in courts still takes place, despite the fact that there have been several cases of failure in this technology concerning reliability. Technology, NM included, is a two-sided coin that can hold benefits as well as potential harm specially when dealing with a vulnerable segment such as children. In this research, the researcher attempt to assess the impact of exposure to NM advertisement on children (both intended and unintended

effects) and to suggest ways to better understand and use such technologies when it comes to children being the most valued aspects of the future.

2. Literature Review

Marketing is defined as the process, set of foundations, and procedures for making, conveying, delivering, and trading offerings that is of value for clients, customers, accomplices and society.

Also marketing is the management procedure through which products and services move from being an idea to the end client. It incorporates the mix of four components called the 4 P's of marketing: (1) distinguishing, identifying and development of an item or a product, (2) determination of its cost, (3) determination of a circulation channel to achieve the client's place, and (4) development and implementation of an advertising plan

The marketing mix is a tool utilized in business. The marketing mix, initially coined by Neil Borden, can be profitable while deciding an item or brand's offer, and is regularly connected with the four Ps. The four Ps was proposed by Professor E. Jerome McCarthy in the 1960s (Nelson, 2016)

Advertising being one of the marketing mix is not really a late human attempt; archaeologists have revealed signs promoting property for rent going back to Pompeii and old Rome. Town messengers were another early type of promoting. As an industry, advertising and promoting did not take off until the availability of the different broad communications: printing, radio, and TV. However, worries over promoting focusing on kids went before both radio and TV. The British Parliament passed laws in 1874 planned to shield kids from the endeavors of merchants to incite them to purchase item (Kunkel and Wilcox, 2004)

NM, on the other hand, is according to Morin (2011), a relatively new evolving discipline which combines examined consumer behavior with neuroscience. Originally controversial field, which first appeared in 2002, is now becoming not only credible, but has also been ranked by specialists among advertising and marketing.

The combination of neuro and marketing expresses merge of two branches, namely neuroscience and marketing. Several US companies began to provide research and consulting in the field of NM, which promoted the use of knowledge and technology derived from the field of cognitive neuroscience. Javor et.al (2013) also describe NM as a discipline that is increasingly used in recent years in media as a theme and also add

that these public discussions are generally directed on potential ethical aspects and point out concerns about negative impact on society, especially on consumer.

Therefore, NM includes the direct application of brain images, scans, or other measurements that detect any brain activity in order to gauge the reaction of consumers to particular products, services, brands, promotions, or other marketing essentials (Plassmann et al., 2012, p19).

One of the most impacting interdisciplinary fields that affects marketing is Neuroeconomy which brings the financial and economical meaning into the neuronal model for basic decision making (Egidi, 2008). Neuroeconomy developed as an autonomous field due to the expanded enthusiasm for exploring how the basic decision making really happens. The increased popularity of which discipline is due to the decreasing costs of neuroimaging, permitting scholars to study the procedures and processes of decision making on a bigger scale, finding the mind responses that decide complex subjective procedures. Scholars now have the potential to connect neuroscience ideas like basic decision making, memory or feelings with marketing ones, for example, targeting, and response to brands or brand loyalty (Perrachione and Perrachione, 2008).

These neural methods are paving the way for marketers to probe the consumers' brains in order to attain important information as to the reasons for the success or failure of a message (Wilson, Gaines and Hill, 2008). In addition, diversity marketing recognizes the influence of cultural backgrounds on the values, tastes, beliefs, and expectations, and on how to interact, ways of entertainment, and lifestyles, and since diversity marketing acknowledges that these differences require customized marketing tools, an argument emerged that stipulates that NM could hypothetically limit diversity. As such, by using NM, advertisers will be able to overcome limitations imposed by marketing on the basis of demographic, psychographic and geographic information and focus on the individual, which lessens marketing diversity efforts (Feit, 2007).

Although the idea of using brain activity measuring instruments to study consumers' reactions initiated a rather significant appeal and interest, people have yet to discover the other side of the coin. There are the potential ethical issues introduced by the use of NM for commercial purposes especially when it comes to the niche vulnerable population. Individuals that would be considered from this population are those (or family members of those) with diseases in the neural system or having disorders of psychological nature, children, and other parties of legally protected groups (Coenen, 2007).

However, Solanis et al. (2013) say in their article that there is rather limited scientific proof that marketers have gained more power through using NM.. First, the complex

nature of the methods used to investigate brain responses is poorly understood by marketing agencies. Second, there is a huge consensus among the scientists that analyzing the data generated by neuroimaging tools remains in its infancy. Therefore, the commercial leverage attained by marketers using NM is, if any, highly speculative. Adding to that, marketing professionals and researchers have remained hesitant to accept the techniques of neuroscience due to some suggested limitations about the capacity of the data gathered by those techniques to provide helpful results about consumer insights. Some scholars believe that the role of neuroscience and neuroimaging is still too inadequate to replace conventional research techniques when it comes to analyzing and influencing consumer behavior. These scholars believe that it is the mutual use of different methods (both neural and conventional) within consumer research that is vital for an accurate and detailed understanding of the different components of consumer behavior. (Solnais, et al., 2013).

2.1. Neuromarketing Tools

There are three well known, non-invasive techniques for mapping the brain: functional magnetic resonance imaging (fMRI), electroencephalography (EEG) and magnetoencephalography (MEG). Because of their safe use from ethics point of view, they are the techniques used in the studies that have been published in the previous years. Despite the fact that EEG is a somewhat old innovation, it is still viewed as a decent device to gauge the brainwaves.

EEG has a relatively low cost which in turn made them popular for NM; but these possess a weakness of not providing information on how the selections are triggered. MEG measures provide much better information and insights into the brain, but this comes with a much higher cost than the previously mentioned method. Unlike the previous technologies, fMRI uses scans to evaluate the variations of the flow of the in blood in the brain. Since it offers deep images of the brain constructions, it is also the most popular technology used in NM studies. Test subjects see the experience as a positive one, viewing the process as a fascinating one (Senior et. al, 2007).

2.2. Practical Uses of Neuromarketing

Uses and implications of NM include but not limited to:

2.2.1. Testing The Effectiveness Of Advertising

Traditional measuring of new advertising campaigns usually involves interviews, focus groups, recall and other conventional methods of marketing research. As per the supporters of NM, participants could be wired to imaging tools while watching pictures or video cuts of a new ad.

According to which zones of the brain "light" up, triangulations can be made about the participant's unconscious thought designs. Assuming that the company's goal for the promotion, e.g. trill, passion, vibe, attention, hostility, consideration, and so forth., can be coordinated to the zone of brain where these ideas are handled. On the off chance that that mind region is unaffected after introduction to the promotional motivator, clearly the ad has failed this vital test. On the other hand, motivators that create a quantifiable change in a predefined zone of the mind induce an effective match albeit genuine buy behavior is still an unanswered inquiry. Generally speaking, NM is seen as an approach to help promoters change their messages; to know whether an advertisement will even escape the beginning entryway (McConnon and Stead, 2007). Ford Motor Company and Pre-Diction; a UK based research firm, have performed limited on car promotional ads.

In addition, the giant British company Unilever and the Brainwave Science people tried one of their TV commercials with utilizing an EEG. The item exhibited and brand message part of the Unilever advertisement evoked much weaker reactions than anticipated. The components that should bring out negative feelings were doing much better yet the overall the commercial did not create the respondent reactions that were expected. Such an analysis endorsed for new advertisement executions ought to help the marketing and advertising group find something new; something significant to add to their imaginative endeavors (Harris, 2006).

2.2.2. Testing Product Appeal

Product engineers regularly utilize deliberately created customer preferences to figure out which products are most speaking to their target customers. In such settings, customers are liable to be affected by norms and social factors. Moreover, shoppers make numerous unconscious behaviors that are past conventional strategies that use reflection (Economist, 2004). But with NM legitimate reactions ought to be more achievable (Friedman, 2006). For instance, review inquire about ordinarily reports that ladies

discover wrestler-turned-actor legend "The Rock" not attractive however records of brain activity demonstrates something else (Singer, 2004).

2.2.3. Celebrity Endorsements

Marketers have since quite a while ago trusted that celebrity endorsements lead to more product appeal and more sales. Tiger Woods, Michael Jordan, Katherine Zeta-Jones, and an extensive rundown of different celebrities have been heavily paid on the grounds that their big name status supposedly helps profits and sales. Be that as it may, as of not long ago, nobody could pinpoint how the sound-related and visual ads using those celebrities help the brand. However, NM provides marketers with an approach to make the last choice of endorser in light of physical proof (Fugate, 2007).

According to Fugate (2007), profoundly well-known and enjoyed big names would be most helpful with items and/or item messages that are prone to be under suspicion. On the other hand, the brain is additionally designed to keep away from danger; an aftereffect of survival inclinations. Once a face gets to be connected with negative or offensive outcomes, the human brain has a tendency to keep away from contact with that picture. This maybe clarifies the breaking of endorsement deals with big, high paid big celebrities.

2.2.4. Logo or Brand Selection

Advertisers normally participate in the act of giving human-like identities to their brands or items, e.g. fun, dependable, dedicated. Yoon et al. (2006) speculated those purchasers' decisions about descriptive words used to depict individuals and items would be handled in various areas of the brain. In their trial, fMRI demonstrated that the left sub-par prefrontal cortex was dynamic amid judgments about brands and the average prefrontal cortex was dynamic amid judgments about individuals. While customers may credit human qualities to brands and items, these attributions are not mean the same as they are for individuals. This suggests numerous conversation for the advertisers that create brand identities (Eastman, 2006).

2.2.5. Media Selection

One way to deal with media selection depends on Hansen's (1981) application of the hypothesis of hemispheric lateralization. Analysts expected that nonliteral, all encompassing, and pictorial pictures were put away and handled on the right half of the mind. This would propose lower request, latent, conceivably subliminal and emotional handling of data in the right half of the hemisphere of the mind. The fitting medium for promoting messages of the "right side" sort would be TV messages of brief length, rehashed every now and again since detailed assessment of message content was not present.

The left side was more fitting for higher order subjective cognition, for example, objective (in the financial sense) decision making. "Left side" promotions ought to be print where more genuine data could be given targeted people.

2.3. Implications of Advertising to Children

The investigation of advertising effects on children has been based in general on two paradigms: The empowered child and the vulnerable child paradigms. In the first paradigm, being the empowered child paradigm, children are considered as being capable of critically process and evaluate advertisement. On the other hand, the vulnerable child paradigm children assumed to not possess the cognitive skills to shield themselves against advertising messages and it is believed that those kids are more prone to fall for the seductive allure of those marketing attempts.

Research drawn from these two paradigms concentrate on two advertising effects: intended and unintended effects.

2.3.1. Intended advertising effects:

The intended effects of advertising which is based on the empowered child paradigm suggests that these effects are anticipated and favored by marketers.

Research has focused on three depended factors: cognitive effects, affective effects and behavioral effects.

Children are considered a big market by promoters according to McNeal (1992). They have significant access of cash to spend on their needs and wants. Second, children are likewise a future market as they progress to being adults. studies has exhibited that kids create brand devotion at an early age, and that good demeanors toward

brands last well into adulthood (McNeal, 1992). Lastly, kids are an imperative market of influencers. Not just do they provide guidance to every day family buys, for example, snacks, desserts, and breakfast items, as they get more seasoned, they additionally can pester their parents and caretakers into buying them stuff (Gurtter and Furnham, 1998; McNeal, 1992). Since children are perceived as buyers; producers, companies, and advertisers have turned out to be take real interest in this segment (Buijzen, & Valkenburg, 2002).

There has been many models constructed to study the process by which people go through when assessing advertising to reach a decision. One of these models is AIDA which stands for: A:Attention, I:Interest, D:Desire, A:Action. The AIDA model display expresses that marketers ought to know how to draw the attention of a purchaser to get the client intrigued or interested by showing its favorable circumstances, advantages and components. Interest is trailed by the desire to have the product. It is marketers' obligation to make a yearning in a consumer to purchase a particular item. Every one of the three stages of AIDA will help to motivate the activity towards buying an item (Hanlon, 2013).

Another model with the name DAGMAR has now become more used than the AIDA model due to its comprehensiveness compared with AIDA. DAGMAR stages are more defined and a bit easier to relate to. According to Hanlon (2013), the term DAGMAR stands for Defining Advertising Goals for Measured Advertising Results. DAGMAR model states that an advertisement must carry a potential customer through four steps:

1. Awareness, Which is basically transforming the customer from not being aware of the brand or the product into knowing them.
2. Comprehension, Which refers to transforming the awareness of the products into a better understanding of the brand or the product and their benefits.
3. Conviction, which means that marketers must convince customer by telling them the benefits of the brand or the product.
4. Action, which is not controlled by marketers. If marketers have been able to convince, the customer and have answered them satisfactorily then the action of buying will occur.

The Hierarchy of Effects Model was originated by Robert J Lavidge and Gary A Steiner in 1961. This marketing advertising model expresses that there are six steps from viewing an advertisement to actual product purchase (Figure 1). The job of the marketers is to lead and encourage the customer to go through the six stages and purchase the product.

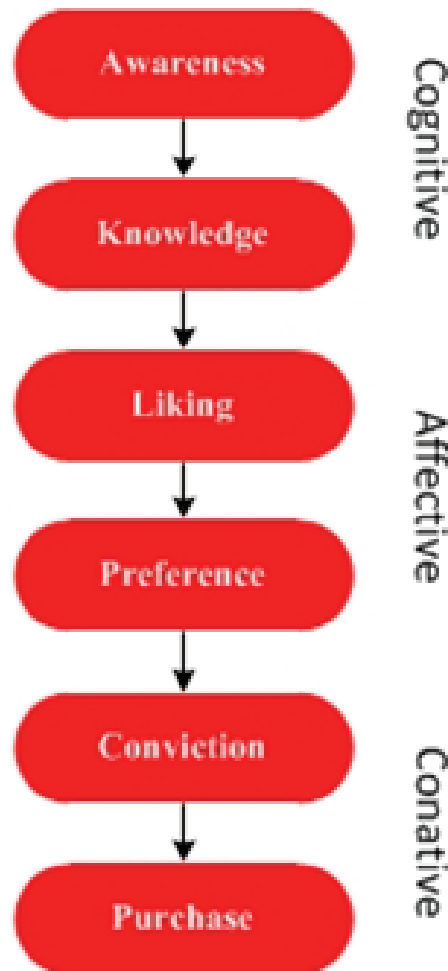


Figure 1: The Hierarchy Of Effects Model. Source: learnmarketing.com.

Looking into these models, they basically fall under three common categories of intended advertising effects as illustrated in table 1.

TABLE 1: Advertising Models Comparison.

	AIDA	Hierarchy of Effects	DAGMAR
Cognitive Effect	Attention	Awareness Knowledge	Awareness Comprehension
Affective Effect	Interest Desire	Liking Preference Convection	Convection
Behavioral Effect	Action	Purchase	Action

These intended effects are what marketers want to achieve from the advertising process. However, using NM will amplify these effects and even might override the children’s ability to assess the advertising correctly, especially considering that children are under developed when it comes to their cognitive abilities (John, 1999). Leading them to fall under the valuable child paradigm.

2.3.2. The Vulnerable Child Paradigm

Children are considered from the vulnerable population. Targeting children is considered highly unethical to many concerned parties (Buijzen, & Valkenburg, 2003). Looking into in view of the vulnerable or powerless child paradigm reflects the unintended impacts of advertising, which are the negative impacts or the byproduct of advertising. Looking into the unintended advertising impacts has dominantly centered around three dependent factors: parent- child conflict, consumerism and disappointment and frustration. The unintended impacts of advertising have gotten most research consideration from many concerned parties and researchers.

Studies have suggested that advertising encourages materialism and consumerism in children (Greenberg & Brand, 1993; Wulfemeyer and Mueller, 1992). Studies revealed that advertising enhances consumerism because such promotional messages is intended to arouse desires for these products that would not otherwise be noticeable by children. Advertising amplifies the philosophy that possessions are important and that more is more. Also, these ads promote the idea that some desirable qualities such as success, beauty and happiness can be acquired only by obtaining products (Pollay, 1986; Wulfemeyer & Mueller, 1992).

Advertising causes parent-child conflict This conflict arises when children's purchase requests after ad viewing are denied. These conflicts can be really difficult to handle and some parents can be pestered by their children resulting in the parent caving in and buying the advertised product (Atkin, 1975; Robertson, 1979; Furnham and Gunter, 2008).

Life dissatisfaction. Advertising is viewed to promote an alternative world full of beautiful people, better things and nice products. When children view ads and start comparing their own situation with this fantasized world, the difference between the two worlds can cause disappointments and frustration (Furnham and Gunter, 2008; Richins, 1991; Martin & Kennedy, 1993).

The above mentioned effects can be magnified when working with such accurate, targeted advertising campaigns that utilized NM thus calling for serious research and attention to all parties involved to better regulate this sector. (Bulley, Braimah and Blankson, 2018)

In the course of recent decades, the increase in targeted ads towards children. This led to raising the alarm, especially with the introduction of technologies such as NM.

A group of psychiatrists communicated their worry to the APA (American Psychological Association) in 1999 regarding using psychology to exploit children for commercial

purposes which is regarded as being highly unethical. By not taking care of the issue, they showed that the APA was violating its own code of conduct. Psychologists likewise get data from the field of neuropsychology to create NM strategies that are intended to help marketers achieve the triune mind (the emotional midbrain and the primitive receptive brain) so as to make it "basically unimaginable for basic thinking and successful decision making to happen while viewing an advertisement" (Schor, 2004, p. 111). Psychologists were utilizing their knowledge to help organizations advertise and market to children focusing on and encouraging consumerism amongst those children. The information in the course of recent years have appeared, and keep on showing, that excessive consumerism in children, tweens, and adolescents causes damage.

3. The Theoretical Framework

In this section, the theoretical framework for the study is discussed. Based on the previous studies on the two child paradigms, a theoretical framework has been suggested to evolve into a conceptual framework that can be tested in the context of NM (figure2). This research novelty lays in the testing of the two paradigms as well as the testing them in a new context (NM context). This reveal the negative and positive impact NM holds on children thus leading policy makers to act accordingly. In addition, this research can lead to utilize the power of technology to better the lives of children by channeling it in the right direction.

4. Summary

Many scholars voices some concerns regarding these NM tools as those could lead to a "unitary thought" which damage the functions and values traditionally attributed to an individual children, starting with a children's ability to direct their own path in life and taking responsibility for their actions. Both now under the threat of being altered or manipulated and thus lead to undesired effects that jeopardize those children's overall wellbeing.

Progression from children to adult consumer who has been subjected since infancy by NM techniques forms a potential area for further investigation and research. Children are the most impressionable sector of our society. By performing this research, NM can now have the chance to prove that it can be used for the greater good if in fact proven to have more power as an intended effect advertising tool to aspire change.

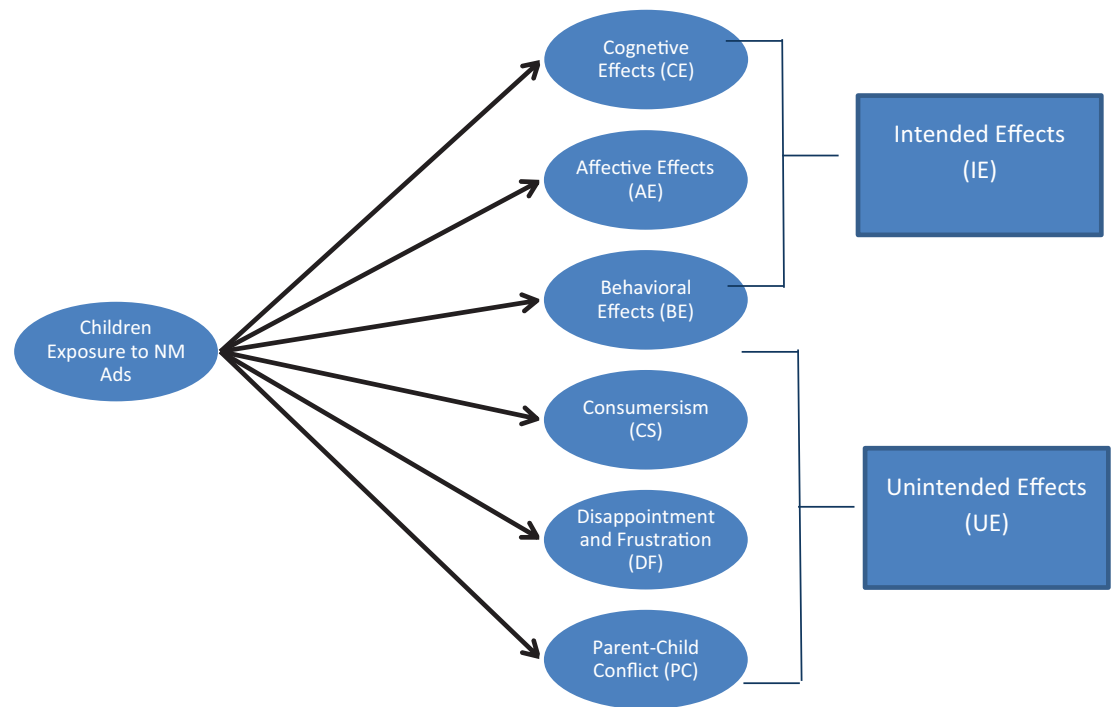


Figure 2: The Theoretical Framework of the Study.

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Conference Paper

Does Control of Corruption Matter for Entrepreneurship in Emerging Economies: Evidence from Post-Communist Countries

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Abstract

Corruption has been shown to discourage entrepreneurship in both developed and developing countries. However, it is less clear to what extent corruption affects the development of institutions' impact on entrepreneurial activity in the context of emerging economies, such as those in the post-communist countries. This study used Institutional Economics as a conceptual framework with the aim of analysing the moderating effect of control of corruption (informal institution) on the relationship between formal institutions (such as the number of procedures, education and training, access to finance, and technology absorption) and entrepreneurial activity. The study used panel data of 14 post-communist countries and different secondary databases from the years 2006-2014. The article has several implications from both theoretical perspectives (advancing the application of Institutional Economics for the study of entrepreneurship) and from the practical point of view (providing insights for governmental policies interested in fostering higher entrepreneurial levels).

Keywords: Institutional Economics, Corruption, Entrepreneurship, Emerging Economies

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1. Introduction

Entrepreneurship has been recognised as a driving force for sustainable economic growth in recent years (Acs and Szerb, 2010; Acs et al., 2014b). However, the above relationship is contingent upon the level of institutional development in a given country (Acs et al., 2014a). As argued by Baumol (1990), where institutions are effective, entrepreneurs are more likely to focus their energies towards productive activities and undertake new ventures. While scholars have analysed the relationship between formal institutions (laws and regulations) and entrepreneurship, the relationship between informal institutions (social norms and culture) and entrepreneurship remains understudied (Carlos et al., 2013; Castaño-Martínez et al., 2015; Fuentelsaz et al., 2015; Bjørnskov and Foss, 2016; Ghura et al, 2017). Moreover, despite the constant interactions between formal

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and informal institutions, the literature lacks consensus regarding such interactions and their impact on entrepreneurship (Williamson, 2000; Ghura et al., 2017).

Little is known about entrepreneurship dynamic in emerging economies: “economies that are increasingly moving to market orientation and seeking to rapidly advance economically” (Bruton et al., 2008, p. 1). While emerging economies are different from developed economies in that they lack well-developed institutions, often resulting in lower entrepreneurial activity (Ahlstrom et al., 2008; Bruton et al., 2008; Bruton et al., 2009), some post-communist emerging economies such as Estonia, Slovenia, and Slovakia have managed to close this gap and appear in the top 30 of the Global Entrepreneurship Index (Acs et al., 2014b). Shedding light on the varying degree in which post-communist countries have achieved entrepreneurship development. It is, therefore, imperative to understand the role of institutions (formal and informal) that have resulted in better performing entrepreneurial environment in the above countries. This is of particular importance as while reforming formal institutions (e.g., government regulations and education) is integral to the overall institutional effectiveness, such improvements do not necessarily guarantee increased entrepreneurial activity (Bruton et al., 2013). This phenomenon is evident in the case of former communist emerging economies; where on the surface, they have laws and regulations similar to those seen in developed economies, however, as commercial laws that affect entrepreneurship are not efficiently implemented, these institutions are not conducive to entrepreneurial activity (Feige, 1997; Smallbone and Welter, 2001; Aidis et al., 2008; Tonoyan et al., 2011; Smallbone et al., 2014).

Moreover, quintessential to the post-communist countries are high levels of corruption as the lingering legacy of the previous centrally planned economic systems (Smallbone and Welter, 2001; Tonoyan et al., 2010). Therefore, these countries can offer a useful context for a comprehensive theoretical understanding of the role of institutions (formal and informal) on entrepreneurship, and whether the improved institutional environment has helped the countries mentioned above increase their level of entrepreneurial activity (Bruton et al., 2008; Bruton et al., 2009). Moreover, due to the prevalence of corruption in these countries’ institutions, there is a need to test corruption as a moderator in order to have a better understanding of institutional dynamics as most previous studies have treated corruption merely as a control variable (Bruton et al., 2008; Bruton et al., 2013; Pathak et al., 2015).

As a result, this study aims to examine the impact of informal institutions such as control of corruption on the relationship between formal institutions and entrepreneurial activity in the context of post-communist countries. Also, still missing from the literature

is a large longitudinal panel study of country-level rates of entrepreneurship. Such panel data analysis is worth pursuing to enhance the validity of the research while considering sufficient controls to account for institutional differences in the context of post-communist economies (Bruton et al., 2008; Levie and Autio, 2011).

This paper proceeds as follows. First, we theorise about the effects of formal institutions, corruption and their interactions on entrepreneurship. Second, we describe our sample data and methodology. Third, we discuss and present the statistical results, and finally, the conclusions and future research are presented.

2. Framework and Theoretical Background

The pioneering work of Douglass North (1990, 2005) and Baumol (1990) remains crucial to our understanding of the central role institutions play in entrepreneurship development. In this perspective, entrepreneurs, who set up organisations, adapt their activities and strategies in response to the market opportunities and limitations provided by the formal and informal institutions (Gnyawali and Fogel, 1994; Manolova et al., 2008). Institutions can be defined in this context as the “rules of the game in a society, or more formally, the constraints that shape human interaction” (North, 1990, p. 3). While formal institutions exist to decrease transaction costs caused by laws and regulations, informal institutions intend to reduce uncertainties involved in human interaction (North, 2005). Therefore, as argued by North (1990), informal institutions that are culturally derived may constrain the changes and the improvements of formal institutions and vice versa.

In line with the seminal work of North (1990, 2005), Gnyawali and Fogel (1994) suggested an institutional framework inclusive of five dimensions of the entrepreneurial environment: government policies and procedures, social and economic factors, entrepreneurial and business skills, and financial and non-financial assistance to businesses. Moreover, recent empirical studies found Gnyawali and Fogel’s (1994) framework conducive in examining the impact of institutional dimensions on entrepreneurial activity (Álvarez and Urbano, 2011; Fuentelsaz et al., 2015; Aparicio et al., 2016). Thus, this study is closely guided by Gnyawali and Fogel’s (1994) entrepreneurial (i.e., institutional) framework and following North’s (1990, 2005) propositions on institutional dynamics. In this respect, government procedures, education and training, access to credit and technology absorption are considered as formal institutions, whereas control of corruption is considered as an informal institution in this study. Our choice in selecting these formal institutions is informed by considerable evidence that these institutions are essential influencers of entrepreneurial activity (Álvarez and Urbano, 2011; Stenholm

et al., 2013; Aparicio et al., 2016). Moreover, in accordance to the model, economic conditions, related to the economic growth of a specific country is included as a control variable in our study (Álvarez and Urbano, 2011; Álvarez et al., 2014).

Since the direct effect of formal institutions that are considered in this study as well as country-level control of corruption, has been empirically established in the existing literature: number of procedures (Urbano and Alvarez, 2014; Castaño-Martínez et al., 2015; Chowdhury et al., 2015; Fuentelsaz et al., 2015; Aparicio et al., 2016), access to credit (Castaño-Martínez et al., 2015; Fuentelsaz et al., 2015; Aparicio et al., 2016), education and training (Castaño-Martínez et al., 2015; Chowdhury et al., 2015; Fuentelsaz et al., 2015; Aparicio et al., 2016), technology absorption (Stenholm et al., 2013; Acs et al., 2014b), and corruption (El Harbi and Anderson, 2010; Aidis et al., 2012; Estrin et al., 2013; Chowdhury et al., 2015), we refrained from engaging in a lengthy review of those effects. Therefore, our conceptual framework is designed to analyse the moderating effects of control of corruption on the relationship between formal institutions and entrepreneurial activity, as shown in Figure 1.

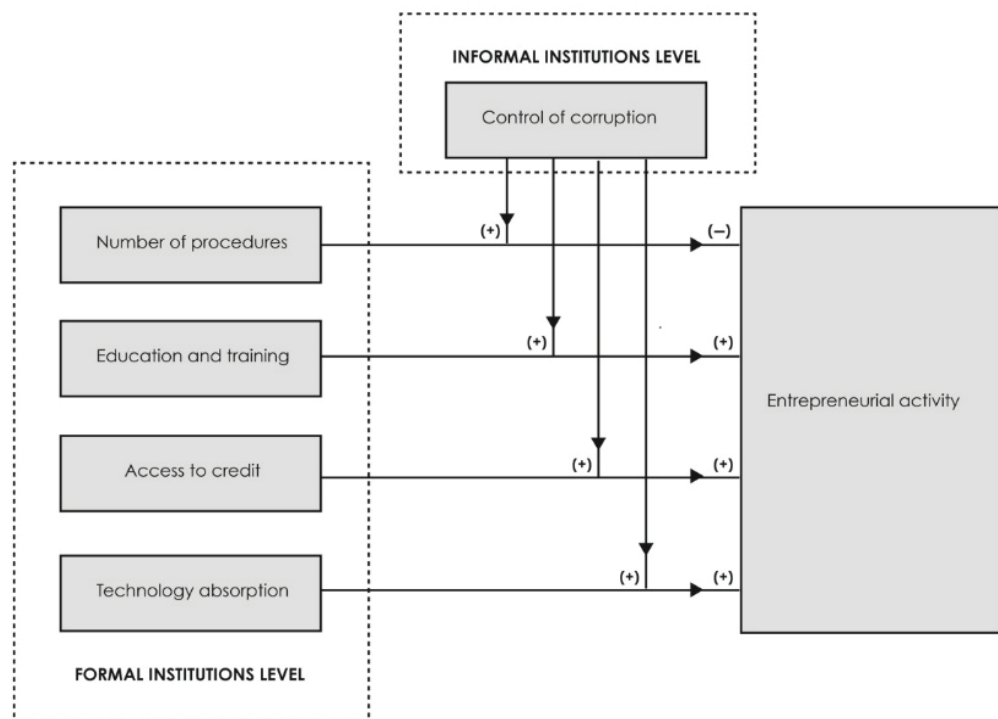


Figure 1: The developed conceptual framework of this study.

2.1. Control of Corruption and Entrepreneurship

Although entrepreneurial activity is influenced by various informal institutions such as social networks (De Clercq et al., 2010; Estrin et al., 2013; Stenholm et al., 2013), cultural values (Hayton and Cacciotti, 2013; Fernández-Serrano and Liñán, 2014; Fernández-Serrano and Romero, 2014; Sambharya and Musteen, 2014; Brancu et al., 2015), role models (Álvarez and Urbano, 2011), media attention (Stenholm et al., 2013), and social recognition (Stenholm et al., 2013; Urbano and Alvarez, 2014; Castaño-Martínez et al., 2015; Castaño et al., 2015), corruption has received very little attention. Corruption as an informal institution is purportedly among the most critical negative indicators that can potentially influence entrepreneurial activity through interaction with other formal institutions (Anokhin and Schulze, 2009). Scholars define corruption in the context of informal abuse of public assets for private gains that impacts resource allocation (Aidis et al., 2012; Payne et al., 2013; Chowdhury et al., 2015). In other words, corruption reflects the multidimensional impact of weak institutions in a given country (Tanzi, 1998; Payne et al., 2013). When corruption is widespread, it becomes embedded in the culture and is thus formed into a social norm of behaviour. Consequently, even if the change is introduced to formal institutional processes, corruption can potentially slow down the desired reforms outcomes (North, 1990; Williamson, 2000; Acemoglu and Robinson, 2006).

It is noteworthy, however, that the current literature is discrepant when it comes to ascribing the role of corruption on entrepreneurial activity and economic growth (Dreher and Gassebner, 2013; Dutta and Sobel, 2016). On the one hand, according to grease the wheel theory, corruption is suggested to help entrepreneurship by shortening the start-up process for aspiring entrepreneurs (Aidit, 2009; Dutta and Sobel, 2016). On the other hand, a larger body of research posited that corruption has a negative overall impact on economic development in the long run, due continuous rent-seeking from entrepreneurs by corrupt officials (Aidit, 2009; Anokhin and Schulze, 2009; Aidis et al., 2012; Avnimelech et al., 2014; Aparicio et al., 2016; Dutta and Sobel, 2016).

Therefore, in light of the current discrepancy, the hypotheses formed in this study aim to expand the understanding of the indirect effect of corruption as a moderator between formal institutions and entrepreneurial activity (Pathak et al. 2015). Following assertions of the signalling theory (Spence, 1973, 1974), formal institutions (e.g., business regulations) are likely to have a better impact on entrepreneurial activity in a corruption-free environment (Levie and Autio, 2011). Thus, this study proposes that control of corruption may have a moderating effect on the relationship between formal institutions

(i.e., the number of business procedures, education and training, access to credit and firm-level technology absorption) and entrepreneurial activity in the context of post-communist countries (Payne et al., 2013).

2.2. Control of Corruption and Number of Procedures for Entrepreneurship

Gnyawali and Fogel (1994) suggested that governmental regulations such as the number of procedures, costs and taxes, among other factors, that are associated with starting a business have a negative connotation for potential entrepreneurs. For example, entrepreneurs in Australia spend two days to start-up a new venture while in Brazil it may take up to 152 days to establish a venture due to stringent regulations and extended length of time to acquire necessary permits and licenses (Klapper et al. 2006). Hence, these extensive business procedures may distract entrepreneurs from investing their resources in “productive” activities (Baumol 1990; Chowdhury et al., 2015).

Various studies have empirically posited the adverse effect of the number of procedures on entrepreneurial activity levels (Urbano and Alvarez, 2014; Castaño-Martínez et al., 2015; Chowdhury et al., 2015; Fuentelsaz et al., 2015; Aparacio et al., 2016). In line with the abovementioned empirical evidence, the Doing Business project at the World Bank advocates for regulation reduction, suggesting that simpler procedures further stimulate entrepreneurs to start new ventures. For example, “simplifying the formalities of registration was the most popular reform during the years 2007 and 2008, implemented in 49 countries” (Álvarez and Urbano, 2011, p. 35).

The above observations about the impact of procedures on entrepreneurship are particularly crucial in the context of emerging economies; since aspiring entrepreneurs in such economies must tackle issues such as volatile or ineffective regulations (Aidis et al., 2008). This argument is further applicable in the context of post-communist countries, which are characterised by higher levels of corruption (Smallbone and Welter, 2001; Tonoyan et al., 2010).

In this realm, Klapper and Love (2010) found that reforms in regards to reducing the number of procedures are more effective in countries with a better business environment. Conversely, he contended that reforms into procedures need much work in countries with fewer advantages business environment. In accordance to Klapper and Love’s (2010) findings, control of corruption is one factor that could be beneficial to the society in terms of promoting greater trust in government reform policies and as such encourage aspiring entrepreneurs to formally register their ventures (Aparicio

et al., 2016). This argument is further supported by Naudé (2008) who suggested that reducing corruption levels in the context of developing countries will ultimately lead to better and more efficient entry procedures and thus, allow for increased market entry of new ventures. To this end, this study hypothesizes that:

H1: Control of corruption moderates the negative relationship between the number of procedures and entrepreneurial activity such that the stronger the control of corruption, the stronger this relationship.

2.3. Control of Corruption, Education and Training for Entrepreneurship

Entrepreneurship education and training have been widely recognised to enhance entrepreneurial activity levels (Gnyawali and Fogel, 1994; Levie and Autio, 2008; Fuentelsaz et al., 2015). In particular, a tertiary educational system that focuses on developing skills and competencies in the areas of market analysis, product and service development, and business and financial literacy, enables entrepreneurs to establish and manage high growth ventures (Bowen and De Clercq, 2008; Danis and De Clercq, 2011; Jiménez et al., 2015). Therefore, an educational system with the focus on entrepreneurship is more likely to equip entrepreneurs with the necessary skills for business design and growth strategies and consequently, enable them to better exploit entrepreneurial opportunities in the market (Levie and Autio, 2008; Fuentelsaz et al., 2015).

Literature suggested that educated workforce is an essential ingredient for higher rates of entrepreneurship in the context of emerging economies (Baumol et al., 2007; Aidis et al., 2008; Valliere and Peterson, 2011). However, educated entrepreneurs may not react similarly to opportunities in all contexts, but rather their reactions may be conditioned by the institutional environment especially in the context of emerging economies (Baumol et al., 2007; Autio and Acs, 2010; Danis and De Clercq, 2011; Acs et al., 2014b). For example, Manolova et al. (2008) found that while some post-communist countries, such as Bulgaria, Hungary and Latvia have higher levels of education, these countries tend to exhibit lower rates of entrepreneurship due to entrepreneur's lack of confidence and required skills to start new businesses. Apart from the fact that this low confidence could be explained through political and social transition (Manolova et al., 2008), literature suggested that improving education would be more effective on increasing entrepreneurial activity levels if it is accompanied by more control of corruption (Álvarez and Urbano, 2011; Aparico et al., 2016).

In this realm, Aparicio et al. (2016) contended that control of corruption increases trust in the system and as such, will create a better alliance between government policies and educational system. Moreover, Álvarez and Urbano (2011) suggested that control of corruption could allow future entrepreneurs to gain a greater share of their generated revenue and therefore, propel higher levels of entrepreneurial activity. Also, control of corruption would allow an increase in the amount of budget allocated to the education infrastructure and research and development (R&D), which are extra variables to support entrepreneurial activity (Aparicio et al., 2016). Hence, controlling corruption could result in more opportunities for new venture creation (Aidis et al., 2008) based on technology and with higher added value (Aparicio et al., 2016). Therefore, in this study's context, the primary challenge for emerging economies is to overcome the high levels of corruption in order to improve the tertiary education and entrepreneurial activity levels (Acs et al., 2014a; Castaño et al., 2015; Aparicio et al., 2016). As a result, this study proposes the following hypothesis:

H2: Control of corruption moderates the positive relationship between education and training and entrepreneurial activity such that the stronger the control of corruption, the stronger this relationship.

2.4. Control of Corruption, Access to Credit and Entrepreneurship

As we mentioned earlier, financial support availability is among the most important pillars for entrepreneurs to start and grow their ventures (Gnyawali and Foger, 1994). Van Auken and Neely (1999) underscored the inadequacy in financial structure poses major obstacle to venture creation, as with no access to credit, individuals are unable to materialise their ideas, and as a result, the entrepreneurial activity decreases. Although new businesses may depend on personal funds received from informal investors such as family and social networks (Szerb et al., 2007), financial resources such as venture capital and bank loans are integral for aspiring entrepreneurs who seek to expand their businesses either locally or in foreign markets (Bowen and De Clercq, 2008; Korosteleva and Mickiewicz, 2011; Stenhom et al., 2013; Fuentelsaz et al., 2015; Aparicio et al., 2016). In this regard, Beck et al. (2005) found that entrepreneurs who face financial constraints such as high-interest rates, collateral requirements and lack of money in the banking system or face the need for special bank connections are less likely to exhibit venture growth rates. Conversely, Beck et al. (2008) found that small firms that obtain formal financing have better performance on several metrics in comparison with similar firms that depend on informal financing. To this end, various studies have suggested policies

to improve access to bank credit through lowering capital requirements; credit with low-interest rates, and credit guarantee schemes, to promote new venture creation (Gnyawali and Fogel, 1994; Álvarez and Urbano, 2011; Bowen and DeClercq, 2008; Castaño-Martínez et al., 2015; Fuentelsaz et al., 2015; Aparicio et al., 2016).

The extent to which the financial system supports entrepreneurial activity in terms of providing resources to start and grow the business varies substantially across countries (Levie and Autio, 2008; Korosteleva and Mickiewicz, 2011; Chowdhury et al., 2015). In the context of emerging economies, the availability of financial resources is limited due to the lack of development in the financial institution (Aidis et al., 2008; Acs and Correa, 2014). In this regard, prior research suggested that higher levels of corruption and bribery adversely impact the development of a country's financial infrastructure (La Porta et al., 1999), and this uncertainty caused by corruption could generate distrust among entrepreneurs in the financial system, preventing its maturity (Aparicio et al., 2016). On the contrary, the prevalence of trust has been found to positively influence entrepreneurs to engage in high-growth business activities (Bowen and DeClercq, 2008). This suggests a potential interaction effect between a country's level of corruption and financial development on the one hand, and the new firm start-ups rates within its borders on the other (Bowen and DeClercq, 2008; Chowdhury et al., 2015).

Concerning the study's context, Johnson et al. (2002) analysed entrepreneurship in post-communist countries and found that extra-legal payments (bribes) hinder entrepreneurial activity more than the lack of financing. Therefore, corruption (as well as other deficiencies in the governance of a country) may increase transaction costs while limiting the income for entrepreneurs (Álvarez and Urbano, 2011). In turn, control of corruption may motivate increased entrepreneurial activity by allowing entrepreneurs to retain a greater share of their generated revenue (Álvarez and Urbano, 2011). As a result, we extend this argument by hypothesising that the presence of corruption free environment can leverage the financial system toward entrepreneurship (Korosteleva and Mickiewicz, 2011; Nofsinger and Wang, 2011; Aparicio et al., 2016). Thus:

H3: Control of corruption moderates the positive relationship between access to bank credit and entrepreneurial activity such that the stronger the control of corruption, the stronger this relationship.

2.5. Control of Corruption, Technology Absorption and Entrepreneurship

The last formal institution analysed in this study is technology absorption (Gnyawali and Fogar, 1994). The diffusion of new technology, as well as the capacity for firms to absorb it, is an essential factor for innovation and high growth ventures (Stenholm et al., 2013; Acs et al., 2014b). In this realm, improvements in information and communication technology (ICT) via internet (e.g., cloud computing, social media, internet of things, mobile phone services and big data analytics) may motivate individuals to start new businesses due to potential for higher returns such as better exchange information, fewer expenses and less time consuming (Acs 2006; Acs et al., 2008a). Hence, public policies that allow faster access to information and internet may further lead to more entrepreneurial activity and more innovation in the context of post-communist countries (Acs and Szerb 2007; Audretsch and Belitski, 2016).

However, as suggested by the literature, it is essential to remove barriers that hinder the development of technological infrastructure policies in the context of emerging economies (Acemoglu and Robinson, 2006; Pathak et al., 2015; Audretsch and Belitski, 2016). In particular, barriers, as mentioned earlier, may allude to the efforts by the political elite to block technological and institutional development in order to protect their benefits under the statuesque system (Acemoglu and Robinson, 2006). Thus, corrupt nations are less likely to benefit from FDI investment by high tech companies that are reluctant to enter markets accompanied by higher potential costs of corruption (Anokhin and Schulze, 2009). As a result, control of corruption may facilitate the transformation of new knowledge into new products and technology that ultimately fosters innovation and higher rates of entrepreneurial activity (Audretsch et al., 2008; Pathak et al., 2015). Thus, this study proposes the following hypothesis:

H4: Control of corruption moderates the positive relationship between technology absorption and entrepreneurial activity such that the stronger the control of corruption, the stronger this relationship.

3. Data and Methodology

Our data sources represent a sample of post-communist countries which fit the characterisations of emerging economies as suggested by Hoskisson et al. (2000). In this context, emerging economies are described as low-income countries that go through encouraging private enterprise development and increased economic liberalisation

(Hoskisson et al., 2000). While these countries shared common histories concerning their pervasive corruption problems and inherited underdeveloped institutional legacies, differences in the pace and extent of economic liberalisation and institutional development provided the basis for our key research question (De Clercq et al., 2010; Kiss et al., 2012):

Do formal institutions affect entrepreneurial activity levels in the same way under both conditions of endemic corruption and freedom from it?

In addressing our research question, we analysed the moderating effect of an informal institution on the relationship between formal institutions and entrepreneurial activity in the context of post-communist countries. The variables analysed in this study included informal (control of corruption) and formal institutions (the number of procedures for starting a business, education and training, access to credit, and technology absorption by firms). The final sample consisted of 14 post-communist countries using a panel of data for the period 2006–2014 in which data were available for all key variables (i.e., dependent and independent variables) of the study (Appendix 1).

The data for this study is procured from different sources (Table 1). The dependent variable related to the entrepreneurial activity (NER) was derived from the World Bank Entrepreneurship Snapshot dataset which tracks the new entry rate of registered firms with government authorities (Acs et al., 2008b). This index is commonly used in the literature to compare entrepreneurial activity across countries (Acs et al., 2008b; Belitski et al., 2016). Moreover, it is particularly useful in accounting for “productive” entrepreneurship as aspiring entrepreneurs tend to register their ventures in order to benefit from the potential advantages of participating in the formal economy (Baumol, 1990; Klapper et al., 2010; Levie and Autio, 2011; Ghura et al., 2017).

The data about the informal institution, control of corruption (CC) as the independent variable, was obtained from the Worldwide Governance Indicators (WGI) project. Control of corruption (CC) captures perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. The scores in this database lie between -2.5 and 2.5, with higher scores corresponding to better outcomes of the institutions (Álvarez and Urbano, 2011; Aparicio et al., 2016).

Moreover, the source of data for the independent variables of formal institutions such as the number of procedures for starting a business (PRO) was taken from the World Bank’s Doing Business project which provides the number of procedures that are officially required for an entrepreneur to start up and formally operate an industrial or commercial business (Álvarez and Urbano, 2011; Aparicio et al., 2016). The second

TABLE 1: Description of variables.

Variable		Description	Source*
Dependant variable	New Entry Rate (NER)	“The number of newly registered firms with limited liability per 1,000 working-age people (ages 15-64) per calendar year.”	Doing Business 2006 to 2014
Environmental factors Informal institutions	Control of corruption (CC)	“Control of corruption (CC) – capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. The values are between -2.5 and 2.5 with higher scores corresponding to better outcomes of institutions.”	WGI 2006-2014
Environmental factors formal institutions	Procedures for starting a business (PRO)	“Natural logarithm of the product between the number of procedures that are officially required for an entrepreneur to start up and formally operate an industrial or commercial business and the duration of these procedures.”	Doing Business 2006 to 2014
	Tertiary education (TEDU)	“Percentage of individuals who have business and entrepreneurial skills. It is obtained as the product of percentage of tertiary graduates in the population multiplied by percentage of tertiary graduates in social sciences, business and law.”	UNESCO 2006 to 2014
	Access to credit (AC)	“Domestic credit indicator provided by the banking sector which includes all credit to various sectors.”	World Bank 2006 to 2014
	Firm-level technology absorption (TA)	“To what extent do businesses in your country absorb new technology? [1 = not at all; 7 = aggressively absorb]”	Global Competitiveness Report 2006 to 2014
Control variable	GDP growth (GDPg)	“Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value.”	World Bank 2006 to 2014

*Doing Business. <http://www.doingbusiness.org/data/exploretopics/entrepreneurship>; <https://data.worldbank.org/data-catalog/doing-business-database>; <https://data.worldbank.org/indicator/FD.AST.PRVT.GD.ZS>; The World Bank <https://data.worldbank.org/indicator/NY.GDP.MKTP.KD.ZG?view=chart>; UNESCO. <http://data.un.org/Search.aspx?q=tertiary+education+enrollment>; Global Competitiveness Index <http://reports.weforum.org/global-competitiveness-report-2015-2016/downloads/>; WGI Worldwide Governance Indicators. <https://data.worldbank.org/data-catalog/worldwide-governance-indicators>.

formal institution for the education and training variable (TEDU) was measured as the percentage of the population with tertiary education in the country, as obtained from the UNESCO database, indicating the percentage of the population with business and entrepreneurial skills (Álvarez and Urbano, 2011; Chowdhury et al., 2015). The third formal institution for access to credit (AC) was measured from the overall domestic credit to the private sector provided by banks as a share of GDP; it comes from the

WDI dataset (Álvarez and Urbano, 2011). A final dimension of the formal institution is the availability of the latest technologies in a country (TA). This variable was measured from how favourable the environment is for the diffusion of technological change and was obtained from the Global Competitiveness Report (GCR) (Acs et al., 2008b; Stenholm et al., 2013).

Finally, given that the level of economic development of countries is considered a critical factor in explaining entrepreneurial activity (Wennekers et al., 2005; Acs et al., 2014a), this study controlled the country's annual percentage growth rate of GDP at market prices (GDPg). In line with other studies, these data sources were obtained from the World Bank (Bowen and De Clercq, 2008; Levie and Autio, 2011; Fuentelsaz et al., 2015).

Table 1 presents a list of dependent and independent variables used in this study, including their sources. Our final sample consisted of a balanced panel with data on 126 observations and 14 countries (see Appendix 1 for a list of post-communist countries with their mean values).

As the study's dataset deal with a relatively substantial number of cross-sectional units (14 post-communist countries) that have various characterisations (e.g., cultural values, religions, social norms, and using different currencies), it is more likely to have heterogeneity in panel data (Wooldridge, 2012). Therefore, this research applied the fixed effects (regression) model (FEM), which allows controlling for unobserved heterogeneity across countries that are fixed over time.

Based on the previous argument, this study proposed the following two models given below for the hypothesis's analyses; this indicated that a FEM provided a better fit for our data. However, this study takes into account that the FEM uses an only within-country variation, which impacts the interpretation of the results (Aidis et al., 2012).

$$NER_{it} = \beta_i + \beta_1 PRO_{it} + \beta_2 TEDU_{it} + \beta_3 AC_{it} + \beta_4 TA_{it} + \beta_5 CC_{it} + \beta_6 GDPg_{it} + \varepsilon_{it} \quad (1)$$

$$NER_{it} = \beta_i + \beta_1 PRO_{it} + \beta_2 TEDU_{it} + \beta_3 AC_{it} + \beta_4 TA_{it} + \beta_5 CC_{it} + \beta_6 (PRO * CC)_{it} + \beta_7 (TEDU * CC)_{it} + \beta_8 (AC * CC)_{it} + \beta_9 (TA * CC)_{it} + \beta_{10} GDPg_{it} + \varepsilon_{it} \quad (2)$$

In model 1, PRO_{it} , $TEDU_{it}$, AC_{it} and TA_{it} are the vectors representing the formal institutions, while CC_{it} is the vector representing the informal institution. $GDPg_{it}$ is the controlling vector that influences entrepreneurial activity in country (i) at time (t) which refers to the economic growth rate.

In model 2, $(PRO * CC)_{it}$, $(TEDU * CC)_{it}$, $(AC * CC)_{it}$ and $(TA * CC)_{it}$ are the vectors representing the moderation effect of control of corruption between formal institutions and entrepreneurial activity.

4. Results and Discussion

Table 2 reports the means, standard deviations, and correlation coefficients of the variables used in this study. Our descriptive statistics showed that some variables might be highly correlated (e.g., control of corruption with education and training, credit and technology). Hence, to avoid the problem of multicollinearity, which could affect the significance of the main parameters in the regressions through Variance Inflation Factor (VIF) computations, we followed Aiken and West’s (1991) procedures to assess the interaction effects. In this approach, we formed interaction terms by multiplying the mean-centred values of the interacting variables, then include these terms in one regression equation. This approach was adopted in different studies to minimise the possibility of multicollinearity (Danis et al., 2011). As a result, the VIF scores are below the cut-off value of 5, and thus, multicollinearity is not a concern in the analysis (Mehmetoglu and Jakobsen, 2017).

TABLE 2: Descriptive statistics and correlation matrix.

		Post-communist countries			
		Mean	Std. Dev.	Min	Max
	1. New Entry Rate (NER)	4.67	3.21	0.81	16.25
Informal	2. Control of corruption (CC)	0.01	0.60	-1.27	1.27
Formal	3. Procedures for starting a business (PRO)	6.17	2.01	3	11
	4. Education and training (TEDU)	59.70	15.93	25.55	88.46
	5. Access to credit (AC)	49.00	20.58	6.17	101.26
	6. Firm-level technology absorption (TA)	4.53	0.58	3.11	5.50
Control	7. GDP growth (GDPg)	2.64	5.36	-14.81	13.75

	1	2	3	4	5	6	7	8
1. NER	1							
2. CC	0.547***	1						
3. PRO	-0.251**	-0.108	1					
4. TEDU	0.284**	0.396***	0.083	1				
5. AC	0.576***	0.717***	-0.144	0.627***	1			
6. TA	0.416***	0.743***	0.064	0.529***	0.554***	1		
7. GDPg	0.021	-0.142	0.141	-0.228*	-0.337***	-0.102	1	

*** $p < 0.001$; ** $p < 0.01$; * $p < 0.10$

Aiming to analyse and compare the role of the institutional environment's effect on entrepreneurial activity, we created two different models. Model 1 included the direct effect of informal and formal factors for entrepreneurial activity, whereas Model 2 included the moderating effect of control of corruption on the relationship between formal institutions and entrepreneurial activity (see Table 3).

In order to estimate all the regressions, we tried to develop a panel data analysis. As discussed earlier, this study assumes that FEM was more appropriate to estimate Model 1 and 2. This specification model enables us to study the impact of variables that vary over time (Wooldridge, 2012). Moreover, to address the possibility of heteroskedasticity, autocorrelation and cross-sectional dependence, we followed Roman's *et al.* (2018, p. 517) study and applied Driscoll and Kraay's (1998) "standard errors for the coefficients estimated by the within-group regression, robust to heteroskedasticity and the very general forms of cross-sectional and temporal dependence".

In Table 3, the results of Model 1 showed that corruption played a significant role in post-communist countries as it was significant at the 95% level and with the expected sign. Thus, living in a country where entrepreneurship has a high-level corruption-free environment often increases the probability of entrepreneurial activity (Anokhin and Schulze, 2009; Aidis *et al.*, 2012; Avnimelech *et al.*, 2014; Aparicio *et al.*, 2016; Dutta and Sobel, 2016). However, formal factors results were inconsistent in Model 1. In this regard, the relationship between the number of procedures for starting a business and entrepreneurial activity was significant at ($p < 0.05$) with a negative sign. In contrast, the relationship between education and training with entrepreneurial activity was not significant. Moreover, the relationship between access to credit and firm-level technology absorption with entrepreneurial activity was significant at the 95% level with a negative sign. These findings were contrary to previous studies which have suggested that education (Baumol *et al.*, 2007; Aidis *et al.*, 2008; Valliere and Peterson, 2011), access to capital (Bowen and De Clercq, 2008; Aparicio *et al.*, 2016) and technology absorption (Gnyawali and Fogel, 1994; Stenholm *et al.*, 2013; Acs *et al.*, 2014b) are a critical success factor when developing new start-ups. This model explained 89% of the total variation of entrepreneurial activity.

The results of Model 2 (see Table 3) showed that the interaction effect of informal and formal institutions was related to the entrepreneurial activity. In this model, we included control of corruption as the moderating factor between the relationship of formal institutions and entrepreneurship. The results found that most of the moderating coefficients in this model were highly significant at ($p < 0.01$), the moderating coefficient

TABLE 3: Regression analysis explaining entrepreneurial activity (NER).

	Model 1 Coef. (std. error)	Model 2 Coef. (std. error)
Informal institution		
Control of corruption (CC)	2.364* (1.22)	3.065** (1.08)
Formal institutions		
Procedures for starting a business (PRO)	-0.227** (.040)	-0.187*** (0.04)
Business and entrepreneurial skills (TEDU)	0.02 (0.02)	0.007 (0.04)
Access to credit (AC)	-0.055** (0.02)	-0.044*** (0.01)
Firm-level technology absorption (TA)	-1.482** (0.44)	-1.441*** (0.29)
Control of corruption (CC) x Procedures for starting a business (PRO)		-0.360*** (0.04)
Control of corruption (CC) x Education and training (TEDU)		0.108*** (0.02)
Control of corruption (CC) x Access to credit (AC)		-0.056*** (0.01)
Control of corruption (CC) x Firm-level technology absorption (TA)		-1.363** (0.42)
Control variable		
GDP growth (GDPg)	0.064** (0.02)	0.044* (0.02)
Constant	2.890** (1.08)	3.978** (1.19)
Prob.(F-statistic)	0.000	0.000
R ²	0.89	0.91
Observations	126	126
Countries	14	14
Notes: Driscoll-Kraay standard errors between parentheses.		
*** $p < 0.01$; ** $p < 0.05$; * $p < 0.1$		

of technology absorption was significant at ($p < 0.05$). Model 2 explains 91% of the total variation in entrepreneurial activity.

In comparison with Model 1, the results of Model 2 indicated that control of corruption has both a direct and indirect impact on entrepreneurial activity; thus, we confirmed the importance of the control of corruption to promoting entrepreneurial activity in post-communist countries as it behaved as a moderator as well (Pathak et al. 2015). Moreover, Model 2 showed a better framework than Model 1, as R² explained 91% of the total variation of entrepreneurial activity.

Concerning the hypotheses testing, Hypothesis 1 suggested that the number of procedures for starting a business has a negative influence on entrepreneurship in each post-communist economy that has lower levels of corruption. While Model 1 showed that number of procedures has a negative and significant influence on entrepreneurial activity for each emerging economy ($\beta = -0.227$; $p < 0.05$), Model 2 showed that the interaction effect between number of procedures and corruption has a negative and significant influence on entrepreneurial activity for each emerging economy ($\beta = -0.360$;

$p < 0.01$). The results showed that the interaction effect of control of corruption and the number of procedures coefficient is higher than the coefficient of the direct effect of the number of procedures in each post-communist economy, supporting Hypothesis 1. Although the results of Model 1 were congruent with the literature (the more days required for the creation of a new firm, the less likely it is that the entrepreneurial activity will occur) (Álvarez and Urbano, 2011; Aparicio et al., 2016), the results of Model 2 showed that the number of procedures has a better impact on entrepreneurial activity in post-communist economies that have lower levels of corruption as suggested by the literature (Naudé, 2008; Klapper and Love, 2010; Aparicio et al., 2016).

Hypothesis 2 proposed that lower levels of corruption positively influence the relationship between education and training with entrepreneurial activity in each post-communist economy. While Model 1 showed that education and training were not significant to entrepreneurial activity, Model 2 showed that the interaction effect between education and training with corruption has a positive and highly significant influence on entrepreneurial activity ($\beta = 0.108$; $p < 0.01$). The results for the moderating role of corruption were in line with our expectations, supporting Hypothesis 2. Therefore, an educational system with an entrepreneurial focus is more likely to increase entrepreneurial activity in emerging economies that have lower levels of corruption rather than higher levels of corruption as suggested by literature (Álvarez and Urbano, 2011; Aparicio et al., 2016).

Hypotheses 3 suggested that access to credit from banks has a positive influence on entrepreneurial activity in the context of each post-communist economy that has lower levels of corruption. While Model 1 showed that access to credit was significant with a negative sign to entrepreneurial activity, Model 2 also showed that the interaction effect between control of corruption and access to credit has a negative and significant influence on entrepreneurial activity ($\beta = -0.056$; $p < 0.05$). The interpretation of the previous results could be explained in three ways. First, the previous results could suggest that entrepreneurs who are associated with higher risk levels tend to obtain financial resources from social networks and family connections; this may be because existing financial institutions are underdeveloped and less likely to support their new ventures (Ho and Wong, 2007; Chowdhury et al., 2015b; Fuentelsaz et al., 2015; Ghura et al., 2017). Second, another interpretation for the findings was suggested by Wennekers et al. (2005), who argued that emerging economies have higher rates of necessity entrepreneurship (i.e., informal entrepreneurship), which does not require large amounts of credit. Lastly, although this latter idea could be right, the results also suggested that entrepreneurs may later depend on alternative sources to fund

their growing businesses, such as venture capital funds, angel investors and corporate investors, due to the lack of adequate financial infrastructure (Bowen and De Clercq, 2008; Aidis, 2012; Ghura et al., 2017).

Finally, Hypotheses 4 suggested that firm-level technology absorption has a significant influence on entrepreneurship in each post-communist economy that has lower levels of corruption. The results were contrary to the study's expectations as the coefficient regression was significant with a negative sign in Model 1 and significant ($\beta = -1.363$; $p < 0.05$) with a negative sign in Model 2. Although not what we predicted, the previous results could suggest that new business activities in post-communist economies that have lower levels of corruption are still not technology-based and characterised by imitative entrepreneurship. In this regard, entrepreneurs in post-communist countries tend to copy technologies from developed economies to expand their economy of scale (Acs, 2006; Minniti and Lévesque, 2010). Entrepreneurs are, therefore, less likely to invest in R&D, even though imitative entrepreneurship is significant to economic growth. This is especially true in the case of emerging economies, as they increase competition and product availability when the revenues to R&D expenditure are low (Minniti and Levesque, 2010).

In general, the estimated coefficient of the control variable of economic growth was consistent with the existing literature (Models 1 and 2), which indicated a positive and significant influence between economic growth and entrepreneurial activity (Levie and Autio, 2011; Fuentelsaz et al., 2015).

To this end, the inconsistency of findings between model 1 and model 2 provided some support for the conceptual premise that it is essential to consider the interactions of formal and informal institutions and their impact on entrepreneurial activity (North 1990, 2005, Williamson, 2000; Acs et al., 2014a; Ghura et al., 2017). These results were in line with previous literature that suggested that certain institutional variables such as control of corruption can be conducive for entrepreneurial activity levels in the context of post-communist emerging economies (Aidis et al., 2008; Tonoyan et al., 2010; Bruton et al., 2013; Aparicio et al., 2016).

5. Conclusion

Considering that entrepreneurship is a key driver for economic growth and development (Acs et al., 2014a, b; Aparicio et al., 2016; Ghura et al., 2017), understanding which institutional variables contribute to fostering and enhancing entrepreneurship appears to be a remarkable phenomenon (Levie and Autio, 2011; Stenholm et al., 2013; Fuentelsaz

et al., 2018; Urbano et al., 2018). In this thesis, balanced longitudinal panel data (for the period 2006-2014) were used to empirically examine the simultaneous effect of institutional variables on the development of entrepreneurial activity in the context of 14 post-communist economies. By developing a conceptual framework of institutional economics, this study analysed the interaction effect of informal (i.e., corruption) and formal institutions (i.e., the number of procedures involved in starting a business and education and training, access to credit, and technology absorption) on the rates of entrepreneurial activity.

The main findings shed more light on the importance of the environmental factors on entrepreneurship in which formal institutions such as the number of procedures necessary to create a new business, entrepreneurship education and training, access to finance, and technology absorption should have to be accompanied by more control of corruption (Álvarez and Urbano, 2011; Aparicio et al., 2016). Overall, control of corruption showed that it behaves as a moderator between formal institutions and entrepreneurship. In particular, the evidence from this study showed that formal institutions, such as the number of procedures, and education and training, are more likely to encourage individual's choice to become an entrepreneur and start a new business activity in post-communist economies that have a perception of lower levels of corruption. Therefore, it is inappropriate for policymakers in post-communist countries to rely on the reform changes of the formal institutions without considering the reforms of the informal institutions, such as corruption.

The study has several contributions. First, it advanced the existing theory in the field of entrepreneurship and Institutional Economics as few empirical papers are grounded in both theories (Acs et al., 2014a, b). Second, we developed a theoretical model that explains factors that may influence the likelihood of individuals entering entrepreneurship. This study was among the first testing the moderating effect of control of corruption on formal institutions predicting entrepreneurial activity. Third, our findings have implications for policymakers who are interested in fostering and promoting entrepreneurship for the benefit of economic and productivity growth in the context of emerging economies.

The generalizability of the study's findings is subject to certain limitations that could become future research lines. First, more accurate measures for both dependent and independent variables could be used. On the one hand, our study has considered only one particular aspect of high-growth entrepreneurship, which is newly registered firms with limited liability. Although newly registered firms are recognised as one of the critical drivers that entrepreneurial activity may make to economic growth (Acs et al.,

2008b; Levie and Autio, 2011), future research should seek to examine other aspects of growth-oriented entrepreneurship such as activities involving a high level of innovation, corporate entrepreneurship or technology developments (Bowen and De Clercq, 2008; Turro et al., 2014). On the other hand, using other (or more) environmental variables (e.g., national culture) is crucial to understanding entrepreneurship in emerging countries where institutional arrangements can vary significantly from those in developed countries (Bruton et al., 2008; Hayton and Cacciotti, 2013; Fernández-Serrano and Liñán, 2014; Fernández-Serrano and Romero, 2014; Sambharya and Musteen, 2014; Brancu et al., 2015). Second, the examined models to explain entrepreneurial activity through institutions are quite adequate and robust, but it is necessary to complement them and consider emerging economies at different levels of economic development (Stenholm et al., 2013; Acs et al., 2014a). Third, it is recommended that further research is undertaken in larger samples across more countries or in different regions such as resource-based economies, African or Asian contexts in which corruption is prevalent in many of those nations (Pathak et al., 2015). We hope that our study will inspire further investigations in future into the interaction's impact between formal and informal institutions on entrepreneurial activity.

Appendix 1: Mean values for Post-Communist Countries

Country 2006-2014	NER ^①	CC ^②	PRO ^③	TEDU ^④	AC ^⑤	TA ^⑥	GDPg ^⑦
1. Armenia	1.41	-0.57	5.89	46.11	28.31	4.27	4.52
2. Croatia	3.36	0.03	8.11	55.81	66.28	4.43	-0.12
3. Czech Republic	2.94	0.27	8.78	61.19	45.33	5.22	1.78
4. Estonia	13.12	0.98	5.00	69.29	81.56	5.43	1.81
5. Georgia	3.88	0.06	4.22	33.11	32.78	4.00	5.36
6. Hungary	5.14	0.35	5.78	61.22	53.50	4.86	0.62
7. Kyrgyz Republic	0.96	-1.16	5.44	44.13	12.81	3.61	4.81
8. Latvia	8.80	0.21	4.56	71.99	75.70	4.62	1.69
9. Lithuania	3.31	0.22	6.44	80.24	52.21	5.05	2.76
10. Macedonia	4.82	-0.11	5.67	38.26	41.95	3.76	3.17
11. Romania	4.86	-0.19	6.22	59.84	35.10	4.31	2.65
12. Russian Federation	4.49	-0.99	7.39	75.75	43.10	4.06	3.16
13. Slovak Republic	4.33	0.22	6.89	53.44	43.69	5.05	3.67
14. Slovenia	3.98	0.88	6.00	85.08	73.22	4.78	1.04

^①“The number of newly registered firms with limited liability per 1,000 working-age people (ages 15-64) per calendar year.”

②“Capturing perceptions of the extent to which public power is exercised for private gain, including both petty and grand forms of corruption, as well as “capture” of the state by elites and private interests. The values are between -2.5 and 2.5 with higher scores corresponding to better outcomes of institutions.”

③“Natural logarithm of the product between the number of procedures that are officially required for an entrepreneur to start up and formally operate an industrial or commercial business and the duration of these procedures.”

④“Percentage of individuals who have business and entrepreneurial skills. It is obtained as the product of percentage of tertiary graduates in the population multiplied by percentage of tertiary graduates in social sciences, business and law.”

⑤“Domestic credit indicator provided by the banking sector which includes all credit to various sectors.”

⑥“To what extent do businesses in your country absorb new technology? [1 = not at all; 7 = aggressively absorb].”

⑦“Annual percentage growth rate of GDP at market prices based on constant local currency. Aggregates are based on constant 2010 U.S. dollars. GDP is the sum of gross value.”

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Conference Paper

Indepth Analysis of Medical Dataset Mining: A Comparitive Analysis on a Diabetes Dataset Before and After Preprocessing

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Abstract

Most of the healthcare organizations and medical research institutions store their patient's data digitally for future references and for planning their future treatments. This heterogeneous medical dataset is very difficult to analyze due to its complexity and volume of data, in addition to having missing values and noise which makes this mining a tedious task. Efficient classification of medical dataset is a major data mining problem then and now. Diagnosis, prediction of diseases and the precision of results can be improved if relationships and patterns from these complex medical datasets are extracted efficiently. This paper analyses some of the major classification algorithms such as C4.5 (J48), SMO, Naïve Bayes, KNN Classification algorithms and Random Forest and the performance of these algorithms are compared using WEKA. Performance evaluation of these algorithms is based on Accuracy, Sensitivity and Specificity and Error rate. The medical data set used in this study are Heart-Statlog Medical Data Set which holds medical data related to heart disease and Pima Diabetes Dataset which holds data related to Diabetics. This study contributes in finding the most suitable algorithm for classifying medical data and also reveals the importance of preprocessing in improving the classification performance. Comparative study of various performances of machine learning algorithms is done through graphical representation of the results.

Keywords: Data Mining, Health Care, Classification Algorithms, Accuracy, Sensitivity, Specificity, Error Rate

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1. Introduction

Today the volume of data present in medical datasets is so huge and thanks to the technology that made it possible to store and extract this large voluminous data efficiently and effectively. Medical diagnosis is the process of creating meaningful patterns or evidences from medical data sets [1]. Extracting this useful information from these medical datasets helps the medical practitioner in early diagnosing of diseases which can save a human life. Having adequate tools to handle this big data solves the problem

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to a great extent. A large number of research studies have conducted in this area and it is still a topic of great interest. A number of classification algorithms are available in the literature and it is interesting to take a closer look at these existing algorithms and their performance on medical datasets. In this paper we conduct experiments on a number of medical datasets using a number of well-known classification algorithms. The aim is to evaluate whether classifier performance can be improved by applying pre-processing techniques before classification. Medical data is well known to contain missing values, outliers and noise and to the best of the authors knowledge there are few papers that look at the impact of pre-processing.

One of the main factors contributing to high death rate all over the world is heart disease. Heart-Stat log Medical Dataset [2] holds medical data related to heart diseases. It is based on data from the Cleveland Clinic Foundation and it contains 270 instances belonging to two classes: the presence or absence of heart disease. The features used to describe this dataset are listed in the Table 1.

TABLE 1: Heart-Stat log Medical Data Features.

Heart-Stat log Data Set Features
Age
Sex
Chest
Resting blood sugar
Serum cholesterol
Fasting blood sugar
Resting electrocardiographic
Maximum heart rate
Exercise induced angina
Old peak
Slope
Number of major vessels
Thal

The study also considers another medical data set Pima Diabetes Dataset (<https://www.kaggle.com/uciml/pima-indians-diabetes-database>) [30] which includes 768 instances and 9 attributes. The features used to describe this dataset are listed in Table 2.

This study considers the dataset Heart-Stat log Medical Data Set and Pima Diabetes Data Set using Weka compares the performance of various machine learning algorithms as specified in Table 3. Weka is a collection of data mining algorithms designed in Java for solving real time data mining applications which can be used to perform a wide

TABLE 2: Pima Diabetes Medical Data Features.

Pima Diabetes Data Set Features
Pregnant
Glucose
Pressure
Triceps
Insulin
Mass
Pedigree
Age
Diabetes

variety of tasks like regression, clustering, association, classification and visualization. Also, other existing studies on this dataset are also included in this paper. The main objective of this study is to find out the most suited algorithm for prediction of diseases and also to understand the importance of preprocessing.

TABLE 3: WEKA names of selected classifiers.

Generic Name	WEKA Name
Bayesian Network	Naïve Bayes
Support Vector Machine	SVM
C4.5 Decision Tree	J4.8
K-Nearest Neighbour	1Bk
Random Forest	Random Forest

2. Related Literature

Solving problems in medical domain using different tools, methods and techniques can be defined as Machine Learning. Improving the accuracy of the analyzed data is the ultimate aim. The process of discovering useful patterns from large volume of data is KDD or Knowledge Discovery. The Table 4 lists the important steps of KDD [3].

One of the most important steps in KDD is Data Pre-processing since the datasets are normally not complete due to missing values, noise, non-representable records and in accurate data. This affects the quality of the results. In order to improve the accuracy of the results the preprocessing step is the most important one. The major steps of data preprocessing are

1. Data Cleaning: the process of detecting and correcting erroneous records in a dataset.

TABLE 4: Steps of Data mining.

Steps of KDD
1. Selection
2. Data Preprocessing <ul style="list-style-type: none"> • Data Cleaning • Data Integration Data • Transformation • Data Reduction • Data discretization
3. Transformation
4. Data Mining
5. Interpretation /Evaluation

2. Data Integration: creating a single dataset from multiple data sources (i.e. heterogeneous relational databases)
3. Data Transformation: the process of converting data from one format or structure to another. E.g. normalisation
4. Data Reduction: transforming data to a simpler and/or more compact form to remove redundancy and to improve algorithm efficiency

Presence of Missing or noisy data can cause inaccurate results. Hence suitable measures should be adopted to deal with these two situations as listed below.

2.1. Missing Data

1. Ignore the tuple: ignore the records with missing values
2. Manually fill in the values: replace them with a global constant
3. Substitute the missing values with a global value
4. Use Mean value: the integral of a continuous function of one or more variables over a given range divided by the measure of the range

2.2. Noisy Data

1. Binning: the process of transforming numerical variables into categorical counterparts.
2. Clustering: the process of making a diagnosis.
3. Regression: A statistical process that allows you to examine the relationship between two or more variables of interest

4. Normalization: the process of organizing data to minimize redundancy.

Data mining refers to the application of algorithms for extracting patterns from data and the two main problem areas under this is Classification and Clustering. A number of algorithms exist in literature that can classify medical data set efficiently.

Some of the algorithms considered this study are explained in detail below: -

C4.5 algorithm

This is a decision tree algorithm that uses divide and conquer strategy. The algorithm eliminates the following problems of unavailable values, continuous attributes value ranges, pruning of decision trees and rule derivation [4].

From the set of training instances select one attribute. Choose the initial subset of training instances and create a decision tree using the instances. Test the accuracy of the constructed tree using remaining instances. If all instances are classified correctly stop else add it to the initial subset and construct a new tree. Repeat the steps.

Advantages and Disadvantages

The advantages of the C4.5 are:

1. Easy to implement and can be interpreted easily
2. Works with noisy data and both categorical and
3. Continuous values

The disadvantages are:

1. Small variation in data can lead to different decision trees
2. Does not work very well on a small training set

2.3. SMO Algorithm

This method usually involves two datasets training data sets and test data set and is generally considered to be a supervised classifier. If the classes are linearly separable a series of lines can be found which divides the classes separately. The best of these is selected as the final separating line which is found by maximizing the distance

to the nearest points of both classes in the training set. Finally, the points on this maximal margin lines are considered to be support vectors. Three important steps of this algorithm Selecting parameters, Optimizing Parameters and calculating the threshold value b . [4]

Advantages & disadvantages

The advantages of the SMO are:

1. Good Prediction accuracy
2. Minimize expected error
3. Works well with few training samples

The disadvantages are:

1. Need to have two data sets: swaps all missing values and converts nominal attributes into binary ones
2. Difficulty in understanding the algorithm

Naïve Bayes

The Naïve Bayes classifier is an estimator algorithm as the algorithm does estimation more than making predictions. First phase is the training phase where the classifier is trained to estimate the parameters needed for classification. Thus, it clearly estimates the probability that a given instance belongs to that particular class. However, the algorithms make an assumption called conditional independence where the effect of an attribute value on a given class is considered independent to the values of the other attributes. It applies Bayes rule in computing the probabilities [5].

Advantages & disadvantages

The advantages of the Naïve Bayes are:

1. Minimum Error Rate
2. Easy to implement

The disadvantages are:

1. Difficult to have learn the interactions between features
2. Works well with big data set but performance can suffer when the dataset is small in size

3. KNN

One of the top 10 ten algorithms for classification, it is easy to implement. In brief, the training portion of nearest-Neighbour does little more than store the data points presented to it. When asked to make a prediction about an unknown point, the nearest-neighbour classifier finds the closest training-point to the unknown point and predicts the category of that training point according to some distance metric. The distance metric used in nearest neighbour methods for numerical attributes can be simple Euclidean distance [6].

Advantages & disadvantages

The advantages of the KNN are:

1. Can be used with very large data sets (scales well)
2. Works comparatively well with noisy data

The disadvantages

1. Lazy Learner as it doesn't learn a discriminative function from the training data but "memorizes" the training dataset instead
2. The success of algorithm depends on the selection of k (the number of neighbors)

The table given below shows some existing studies on **Heart-Stat log Data Set**. The performance metrics considered is Classification Accuracy i.e. the percentage of correctly classified instances. The results found in Literature are summarized in Table 5.

TABLE 5: Results from Literature-Heart Stat log Medical Data Set.

Author	Technique	Performance Metrics
Vikas Chaurasia and Saurabh Pa [7]	RBF Network Decision tree	Accuracy.77 Accuracy.75
Amma [8]	Genetic Algorithm	Accuracy.94

Author	Technique	Performance Metrics
Wiharto [9]	SVM	Accuracy.61
Jaganathan P., Kuppuchamy R [10]	Mean selection method	Accuracy.84 Specificity.85 Sensitivity.84
Jaganathan P., Kuppuchamy R [10]	Half selection method	Accuracy.84 Specificity.85 Sensitivity.84
C. V. Subbulakshmi and S. N. Deepa[11]	PSO	Accuracy.86 Specificity.86 Sensitivity.86
Ms. shtake S.H & Prof.Sanap S.A. [12]	Decision Tree Naive Bayes Neural Networks	Accuracy.94 Accuracy.95 Accuracy.94
Chaitrali S. Dangare [13]	Naive Bayes Neural Networks Decision Tree	Accuracy.99 Accuracy.99 Accuracy.90
Jyoti Soni [14]	Decision Tree Naive Bayes Neural Networks	Accuracy.89 Accuracy.86 Accuracy.85
AH Chen, SY Huang, PS Hong, CH Cheng, EJ lin [15]	Neural Networks	Accuracy.80
Vikas Chaurasia, [16]	CART ID3 Decision Table	Accuracy.83 Accuracy.72 Accuracy.82
Andrea D’Souza [17]	Neural Networks K-Means Clustering	Accuracy.79 Accuracy.63
Milan Kumari [18]	Decision Tree Neural Networks SVM	Accuracy.79 Accuracy.80 Accuracy.84
Abhishek Taneja [19]	Naive Bayes Decision tree Neural Networks	Accuracy.86 Accuracy.89 Accuracy.89
Palaniappan Rafiah Awang [20]	Decision Tree Neural Networks	Accuracy.89 Accuracy.85

Table 6 summarizes the results from Literature performed on the Diabetes Dataset.

4. Results and Discussions

4.1. Implementation Platform

The implementation Platform is Weka version 3.9 and the dataset used is Heart-Statlog Medical Data Set and Pima Diabetic Data Set. The Heart-Statlog Medical Data Set contains 270 instances and 13 attributes. The Diabetes Dataset contains 768 instances

TABLE 6: Results from Literature-Diabetes Medical Dataset.

Author	Technique	Performace Metrics
K. Saravananathan ¹ and T. Velmurugan [21]	J48 CART SVM KNN	Accuracy.67 Accuracy.62 Accuracy.65 Accuracy.53
Saman Hina, Anita Shaikh and Sohail Abul Sattar [22]	Naïve Bayes MLP J48 Random Forest	Accuracy.76 Accuracy.81 Accuracy.75 Accuracy.79
Aiswarya Iyer, S. Jeyalatha and Ronak Sumbaly [23]	J48 Naïve Bayes	Accuracy.74 Accuracy.79
R. Sivanesan, K. Devika Rani Dhivya [24]	J48	Accuracy.73
J. Anitha, Dr.A. Pethalakshmi [25]	J48 Naïve Bayes	Accuracy.79 Accuracy.77
Meraj Nabi, Pradeep Kumar, Abdul Wahid [26]	Naïve Bayes Logistic Regression J48 Random Forest	Accuracy.76 Accuracy.80 Accuracy.76 Accuracy.76

and 9 attributes the implementation algorithms are C4.5 (J48), SMO, Naïve Bayes, KNN and Random Forest.

4.2. Performance Metrics

The actual and predicted classification done by a classification matrix is generated and represented by a confusion matrix. A confusion matrix is a table that is often used to describe the performance of a classification model on a set of test data for which the true values are known.

Once the confusion matrix is generated for each implemented algorithm the following metric values Accuracy, Sensitivity, Specificity and Error rate are calculated from the confusion matrix using the formulas listed below. The table 7 shows the confusion matrix for a two-class classifier [27].

TABLE 7: Confusion Matrix.

		Predicted	
		No	Yes
Actual	Negative	A	B
	Positive	C	D

Where: A is the number of True Positives

B is the number of True Negatives

C is the number False Positive

D is the number of False Negatives

1. **Accuracy:** It is the percentage of accurate predictions.

$$\text{Accuracy} = (A + D) / (A+B+C+D)$$

2. **Sensitivity:** It is the proportion of positives that are correctly identified.

$$\text{Sensitivity} = D / (D + C)$$

3. **Specificity:** It is the proportion of negatives that are correctly identified.

$$\text{Specificity} = A / (A + B)$$

4. **Error Rate:** It is equivalent to 1 minus Accuracy

$$\text{Error Rate} = (B + C) / (A+B+C+D)$$

4.3. Experimental Results Before Preprocessing- Heart Statlog Medical Data Set

The following algorithms C4.5, SMO, Naïve Bayes, KNN and Random Forest were run on the dataset and the generated confusion matrix is listed in Table 8: -

TABLE 8: Confusion Matrix for C4.5 (Heart Statlog).

		Predicted	
		No	Yes
Actual	Negative	119	31
	Positive	32	88

Accuracy =.77 Sensitivity =.73

Specificity=.79 Error Rate =.23

TABLE 9: Confusion Matrix for Random Forest (Heart Statlog).

		Predicted	
		No	Yes
Actual	Negative	126	24
	Positive	26	94

Accuracy =.81 Sensitivity =.78

TABLE 10: Confusion Matrix for Naïve Bayes (Heart Statlog).

		Predicted	
		No	Yes
Actual	Negative	131	19
	Positive	22	98

Specificity =.84 Error Rate =.19

Accuracy =.85 Sensitivity =.81

Specificity=.87 Error Rate =.15

TABLE 11: Confusion Matrix for kNN (Heart Statlog).

		Predicted	
		No	Yes
Actual	Negative	115	35
	Positive	32	88

Accuracy =.75 Sensitivity =.73

Specificity =.77 Error Rate =.25

TABLE 12: Confusion Matrix for SMO (Heart Statlog).

		Predicted	
		No	Yes
Actual	Negative	131	19
	Positive	24	96

Accuracy =.84 Sensitivity =.80

Specificity =.87 Error Rate =.16

The results show that Naïve Bayes outperforms the other algorithms when measured in terms of accuracy, sensitivity, specificity and error rate.

4.4. Experimental Results Before Preprocessing- Diabetes Medical Data Set

The following algorithms C4.5, SMO, Naïve Bayes, KNN and Random Forest were run on the dataset and the generated confusion matrix is listed in table 13: -

Accuracy =.74 Sensitivity =.59

Specificity =.81 Error Rate =.26

Accuracy =.76 Sensitivity =.61

Specificity =.83 Error Rate =.24

TABLE 13: Confusion Matrix for C4.5 (Diabetes).

		Predicted	
		Yes	No
Actual	Negative	407	93
	Positive	108	160

TABLE 14: Confusion Matrix for Random Forest (Diabetes).

		Predicted	
		Yes	No
Actual	Negative	418	82
	Positive	104	164

TABLE 15: Confusion Matrix for Naïve Bayes (Diabetes).

		Predicted	
		No	Yes
Actual	Negative	422	78
	Positive	104	164

Accuracy =.76 Sensitivity =.61
 Specificity=. 84 Error Rate =.24

TABLE 16: Confusion Matrix for kNN (Diabetes).

		Predicted	
		No	Yes
Actual	Negative	397	103
	Positive	126	142

Accuracy =.70 Sensitivity =.52
 Specificity=.79 Error Rate =.30

TABLE 17: Confusion Matrix for SMO (Diabetes).

		Predicted	
		No	Yes
Actual	Negative	449	51
	Positive	123	145

Accuracy =. 77 Sensitivity =.54
 Specificity=.89 Error Rate =.23

The results show that SMO outperforms the other algorithms when measured in terms of accuracy, sensitivity, specificity and error rate.

4.5. Experimental Results After Preprocessing

The algorithms C4.5, SMO, Naïve Bayes, KNN and Random Forest were run on data after applying appropriate preprocessing filters and the results are summarized below. Various modifications were done on data preprocessing and model parameters to achieve the best results. Since the Heart Statlog Medical DataSet did not have any missing values the results after preprocessing stayed the same. However, improvement in performance was exhibited by the Diabetes Data set.

The following algorithms C4.5, SMO, Naïve Bayes, KNN and Random Forest were run on the Diabetes dataset after preprocessing and the results are summarized in the table 18.

TABLE 18: Results after Preprocessing (Diabetes Dataset).

Algorithms	Accuracy	Sensitivity	Specificity	Error rate
C4.5(J48)	.76	.61	.83	.24
SMO	.78	.56	.90	.22
Naïve Bayes	.77	.63	.85	.23
KNN(IBK)	.72	.54	.81	.28
Random Forest	.76	.62	.84	.24

The performance on imputed data (preprocessed data) showed better classification accuracy when measured with respect to sensitivity, specificity and accuracy.

4.6. Comparative Analysis

The study needs to analyze if the classification accuracy improved after preprocessing (imputation) the data when measured with respect to sensitivity, specificity and accuracy. The Table 19 given below shows the performance measures on Diabetes Dataset before and after preprocessing.

TABLE 19: Performance analysis of Diabetes Dataset before and after Preprocessing.

Algorithms	Accuracy		Sensitivity		Specificity		Error rate	
	BP	AP	BP	AP	BP	AP	BP	AP
C4.5(J48)	.74	.76	.59	.61	.81	.83	.26	.24
SMO	.77	.78	.54	.56	.89	.90	.23	.22
Naïve Bayes	.76	.77	.61	.63	.84	.85	.24	.23
KNN(IBK)	.70	.72	.52	.54	.79	.81	.30	.28
Random Forest	.76	.76	.61	.62	.83	.84	.24	.24

The graph (Figure 1) shows the comparison of performance graphically in terms of accuracy with before preprocessing (BP) and after preprocessing (AP) (imputed and scaled data) for Diabetes dataset

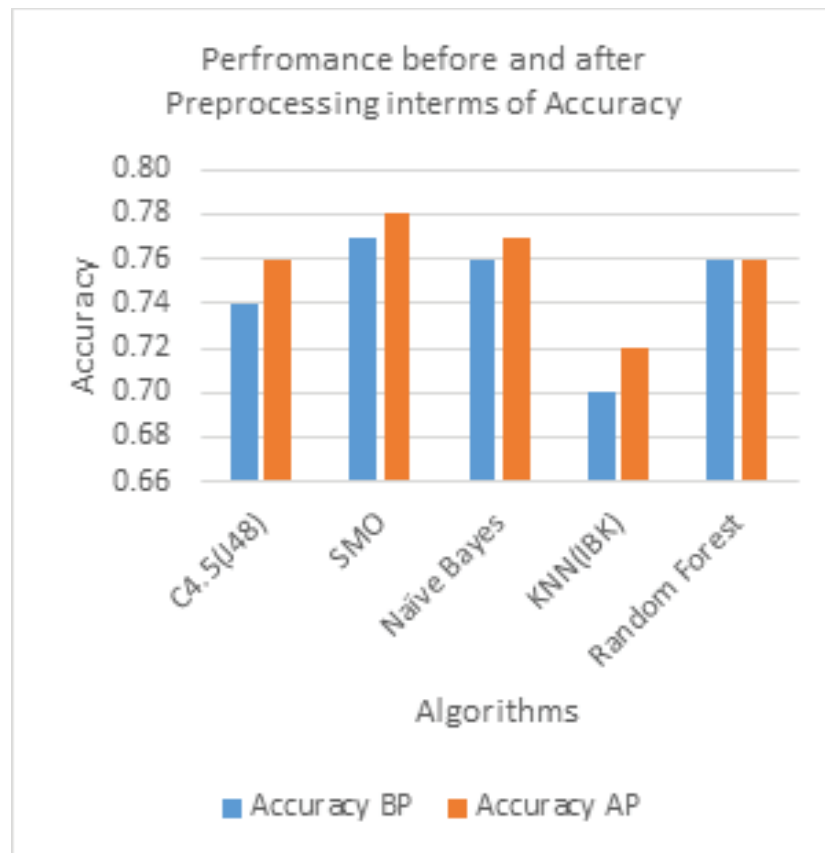


Figure 1: Performance Comparison in terms of Accuracy.

The graph (Figure 2) shows the comparison of performance graphically in terms of sensitivity with before preprocessing and after preprocessing (imputed and scaled data) for the Diabetes dataset.

The graph (Figure 3) shows the comparison of performance graphically in terms of specificity with before preprocessing and after preprocessing (imputed and scaled data) for Diabetes dataset.

The graph (Figure 4) shows the comparison of performance graphically in terms of Error rate with before preprocessing and after preprocessing (imputed and scaled data) for the Diabetes dataset.

The performance is measured in terms of Accuracy, Sensitivity, Specificity and Error rate on Diabetes dataset using the algorithms KNN, Random Forest, SMO and J48. The metrics values are recorded by applying the algorithms on the dataset that has not be preprocessed and again the same algorithms are applied on the dataset after preprocessing. The results clearly show that the performance after imputation has

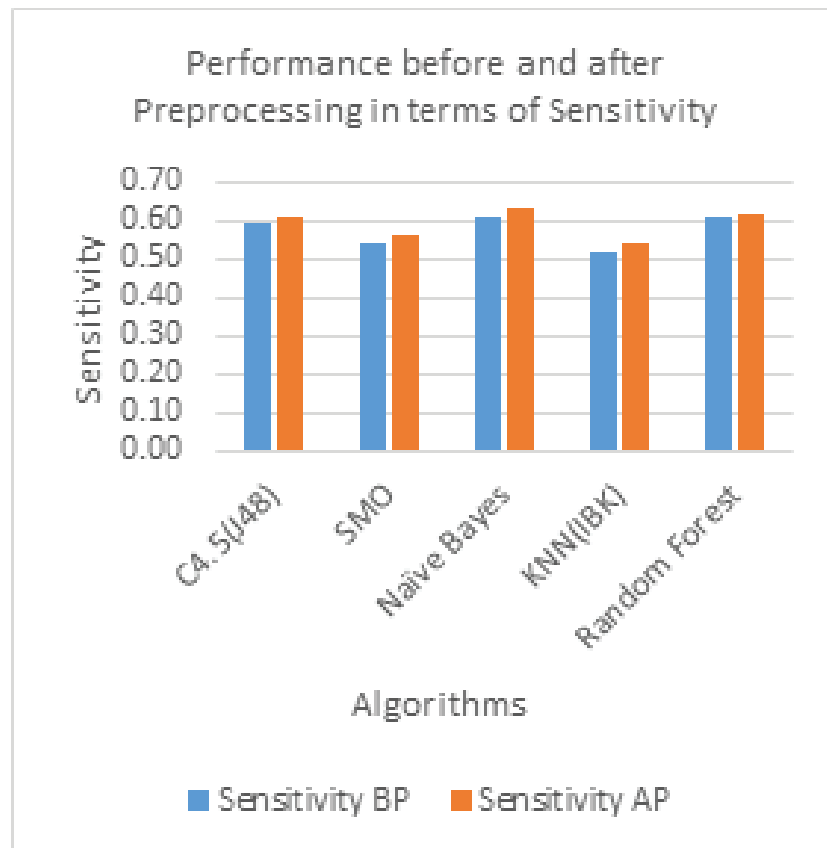


Figure 2: Performance Comparison in terms of sensitivity.

improved significantly. The study showed better classification accuracy when measured with respect to sensitivity, specificity, accuracy and error rate on preprocessed data. This clearly shows the significance of preprocessing step in datamining. The dataset if it has a lot of missing values and noisy data will not give you quality results. A significant improvement is noticed in terms of Accuracy, sensitivity, Specificity and error rate when applied on preprocessed data.

5. Conclusion

Efficient classification of medical dataset is a major datamining problem then and now. Diagnosis, Prediction of diseases and the precision of results can be improved if relationships and patterns from these complex medical datasets are extracted efficiently. This paper analyses some of the major classification algorithms like C4.5 (J48), SMO, Naive Bayes, KNN Classification algorithms and Random Forest and the performance of these algorithms are compared using WEKA. Performance evaluation of these algorithms is done based on Accuracy, Sensitivity and Specificity and Error rate. The medical data set used in this study are Heart-Statlog Medical Data Set which holds medical data related

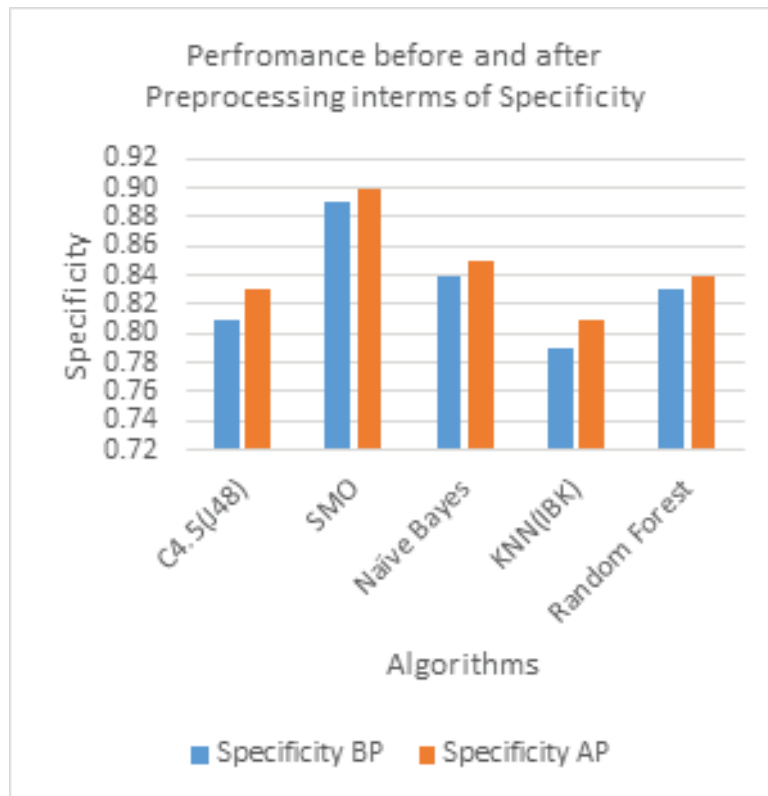


Figure 3: Performance Comparison in terms of Specificity.

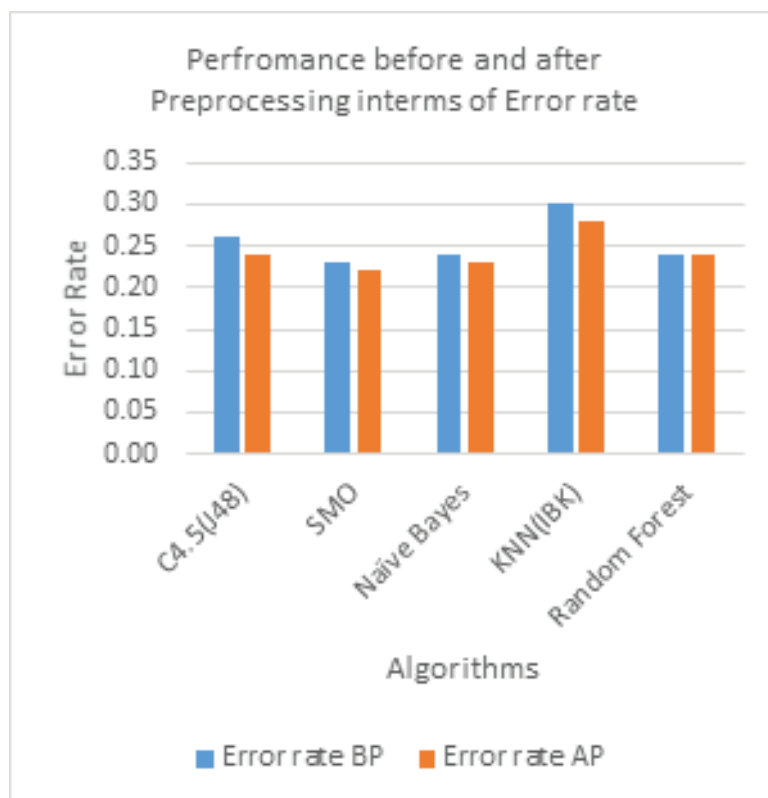


Figure 4: Performance Comparison in terms of Error Rate.

to heart disease and Pima Diabetes Data Set which holds data related to Diabetes. The results showed that SMO outperformed the other algorithms when measured in terms of accuracy, sensitivity, specificity and error rate for Heart-Statlog Medical Data and since the dataset didn't have any missing values the result remained same after preprocessing. For the Diabetes Dataset the results showed that the Naïve Bayes algorithm outperformed the other algorithms when measured in terms of accuracy, sensitivity, specificity and error rate. However, the results improved when appropriate preprocessing namely imputation was done on the dataset. The study showed better classification accuracy when measured with respect to sensitivity, specificity, accuracy and error rate on preprocessed data.

6. Future Work

The main goal of this paper was to explore the different datamining algorithms and to measure their performance on medical dataset using Accuracy, Sensitivity, Specificity and Error rate as the metrics. As a future study the researcher intends to improve kNN algorithm as kNN is considered as one of the top 10 best mining algorithms, and also the researcher intends to take it as a challenge to increase the accuracy percentage of kNN algorithm by improving it and to make it outperform the other algorithms considered in the study.[29]

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Conference Paper

The Role of Motivation in Enhancing Employees' Creativity: A Literature Review

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Abstract

Organizations from different industries worldwide focus their efforts and budgets to enhance employees' creativity which is widely perceived as a major success ingredient in today's challenging business environment. Consequently, practitioners and managers establish reward systems to enhance employees' creativity. However, the literature presents opposing views pertaining to the relationship between rewards and employees creativity, such that some scholars find it important to be intrinsically motivated to be creative whereby others find extrinsic motivation (e.g. rewards) to be important to enhance creativity. This paper aims to provide a comprehensive literature review by presenting prominent theories addressing the role of intrinsic and extrinsic motivation in enhancing employees' creativity. It then highlights the research questions intended to be investigated and finally presents the context of proposed empirical research.

Keywords: creativity, intrinsic motivation, extrinsic motivation, rewards

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1. Introduction

The ultimate goal of most organizations from different industries across the globe is to achieve sustainability and long term success. In today's global business environment, obtaining competitive advantage and achieving long term success has become a challenging goal for organizations. Accordingly, organizations direct tremendous efforts and budgets to foster employees' creativity. Understanding the ways of enhancing employees creativity is believed to be fruitful for organizations success as well as for the economic growth of a country as stated by the Organization of Economic Cooperation and Development (OECD, 2010), such that the innovation of a country branches from the innovation of its organizations which constitute of people, therefore, enhancing employees creativity is key. In the same context, fostering employees' creativity has its own set of benefits to the employees themselves, especially that the mechanisms used to enhance creativity could include rewards and incentives for creative employees.

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A considerable number of studies have shed light on the antecedents and conditions that hinder or promote employees' creativity (Amabile, Hennessey and Grossman, 1986; Woodman, Sawyer and Griffin, 1993; George and Zhou, 2002; Baer, Oldham and Cummings, 2003). The main aim of those studies was to investigate the relationship between contextual factors and employees' creativity to advance the understanding as well as to outline the conditions under which those factors are instrumental or detrimental to employees' creativity. A number of scholars have argued that intrinsic motivation (i.e. an individual is engaged in an activity for the sake of the activity itself as he/she finds it interesting and exciting) is an important ingredient to boost employees' creativity (Amabile, 1996; Shalley and Oldham, 1997). In light of this view, managers should consider providing employees with opportunities to gain intrinsic rewards such as engaging employees in challenging and stimulating jobs (Hackman and Oldham, 1980).

Despite the literatures suggestion of using intrinsic rewards, managers continue to use extrinsic rewards (e.g. monetary incentives) (Fairbank and Williams, 2001). In a similar vein, a group of scholars argue that the use of extrinsic rewards will enhance employees' creative performance (Eisenberger, 1992), whereas another group of scholars argue that the use of extrinsic rewards will diminish employees' creativity (Amabile, 1996). It is unfortunate that the direction of extrinsic rewards effects on employees' creativity has a little agreement among scholars (Amabile, 1996). This inconsistency in research findings provides an opportunity to investigate the specific conditions under which rewards have negative, positive or neutral effects on employees' creativity (Shalley and Zhou, 2003; Anderson, Potocnik and Zhou, 2014). This will not only help us understand different conditions but will also assist managers in adopting a selective rewarding strategy in respect to creativity.

Consequently, the purpose of this paper is to provide a literature review of the relationship between rewards and employees' creativity and to highlight the research gap. It aims at presenting the prominent theories and frameworks that address the relationship as well as the research findings of distinct groups of scholars. The paper is structured as follows: Section 1 provides an introduction to the topic, the objective of the research and it highlights the key beneficiaries of the study. Section 2 provides the theoretical background by presenting the prominent theories and frameworks in the literature. Section 3 provides a critique to the existing literature and identifies the research questions. Section 4 presents the research context. Section 5 presents the conclusions and suggested future work.

2. Theoretical Background

The body of research on employee creativity and work motivation have progressed massively since 1988 when the first creativity model was introduced by Amabile, and since Porter and Lawler first discovered work motivation in 1968. It is noteworthy that this field have received a considerable attention from scholars given the importance of work motivation in fostering employees' creativity (Deci and Ryan 1985; Amabile 1996), and the fundamental role of employees' creativity in gaining competitive advantage and fostering organizational survival (Zhou and Shalley, 2003; Anderson, De Dreu, & Nijstad, 2004). Although the scholarly progress and yielded results are significant thus far, the need for further advancement in the subject matter is inevitable. The relationship between employees' motivation and creativity is not well defined yet in the literature, such that many studies yielded different results on whether rewarding employees will lead to enhanced creativity or not (Eisenberger & Cameron, 1996). From this ground, this section aims to provide a comprehensive review of the literature on employees' creativity, intrinsic and extrinsic motivation and other related variables such as employees individual traits. The following paragraphs will further define the intended variables.

Creativity is defined early in the literature as the production of original and useful ideas (Amabile, 1996). It is suggested that creative ideas could be generated from employees at any level of the organization, in any job and not necessarily a job that demands creativity (Majdar, Oldham, and Pratt, 2002; Nonaka, 1991). As pointed in the literature, creativity can occur at an individual, team and organizational level or at more than one of these levels combined (Anderson, Potočnik and Zhou, 2014). Creativity is often viewed as the first step of innovation, since creativity is centered on idea generation whereas innovation is centered on idea implementation (Amabile, 1996; Mumford and Gustafson, 1988). This paper will focus on employees' individual creativity only and not organizational innovation as this study intends to address the relationship at an individual level and not on an organizational level.

Being motivated is defined as being moved to do a certain activity, a person who is energized to do a certain task is considered motivated whereas a person who is not inspired to act is considered unmotivated (Ryan and Deci, 2000). The discovery of intrinsic and extrinsic work motivation goes back to Porter and Lawler's proposed model in 1968. Intrinsic motivation is defined as the motivation to do an activity because it is interesting and gives spontaneous satisfaction. Whereas extrinsic motivation is defined as the motivation to do an activity because of a separate consequence such as verbal

or tangible rewards. In the case of extrinsic motivation, the satisfaction is obtained from the consequences (e.g. rewards) rather than from the activity itself.

The following table presents prominent studies in the literature that have addressed the relationship between employees’ creativity and motivation.

TABLE 1: Prominent studies in the literature of creativity and Motivation (Source: Journal Articles).

Author, year and name of theory	Contribution	Scope for further advancement in relation to this paper
Deci and Ryan 1985. (Cognitive evaluation theory)	This theory suggests that contextual factors that affect intrinsic motivation has two functions “informational” or “controlling”. When it is informational, it positively affects intrinsic motivation and hence creativity. When it is controlling it negatively affects intrinsic motivation and hence creativity. According to the cognitive evaluation theory, people need to feel autonomous and competent, when individuals feel competent and self-determining, they will experience high level of intrinsic motivation toward a task. Therefore contextual factors that promote the feeling of autonomy and competence enhance intrinsic motivation and hence creativity, whereas factors that diminish these feelings undermine intrinsic motivation and creativity respectively.	This theory was tested on laboratory experiments and not in organizational settings, which leads to the issue of external validity of the research findings since the laboratory environment includes participants who are often not full time employees and hence it cannot constitute a real work environment (Shalley and Zhou, 2003). Second, it assumes that being motivated by extrinsic rewards contingency rather than the work itself is detrimental to intrinsic motivation and hence creativity, without considering that people actually work to earn money and therefore monetary rewards should be an appealing motive. Moreover, this theory does not provide clear directions and conditions for managers under which extrinsic rewards should be used. It provides an opportunity for future research to investigate the relationship between rewards and creativity in organizational settings as well as to test conditions that could have “informational effect” to intrinsic motivation.
Baer, Oldham and Cummings, 2003. (it refers to Cognitive evaluation theory)	This study examines some contextual factors that could have informational or controlling effect on employees creativity as suggested by the cognitive evaluation theory in 1985. According to this study it is mentioned that the link between intrinsic motivation and creativity is positive as agreed by scholars (accepted wisdom). It suggests that extrinsic reward-creativity relationship is inconsistent because of the link between extrinsic rewards and intrinsic motivation. There are conditions (contextual factors) such as job complexity and cognitive style, under which extrinsic rewards boost intrinsic motivation or not, which in turn affects creativity. This study found the following results: <ul style="list-style-type: none"> o Adaptors in simple jobs are more creative when offered extrinsic rewards. o Innovators in simple jobs are less creative when offered extrinsic rewards. o Adaptors in complex jobs are less creative when offered extrinsic rewards. o Innovators in complex jobs are neutrally creative when offered extrinsic rewards. 	Although it is argued in this study that extrinsic rewards affect creativity through effects on intrinsic motivation. intrinsic motivation is not measured directly in this study, so it’s not clear if the effects of reward, job complexity and cognitive style are mediated by intrinsic motivation

Author, year and name of theory	Contribution	Scope for further advancement in relation to this paper
Janssen and Yperen, 2004. (refers to the achievement goal theory, Dweck 1986)	In this study the researchers examined the relationship between goal orientations and employees creativity, Goal orientations are important contextual factors to be considered to further understand the relationship between rewards and employees creativity. This study proposed and found that individuals having a mastery goal orientation are positively related to innovative job performance and that individuals with performance orientation are negatively related to innovative job performance.	the results of this study cannot be generalized since the sample used consisted of 170 employees from a Dutch firm that is an energy supplier. The sample consisted of employees of a lower level from an industrial organization only. Also, innovative job performance was a dependent variable in this study and creativity was not, therefore the result of this study cannot be generalized on the relationship between goal orientations and creativity. Although Mastery orientation was found to be positively related to innovative behavior, the measure that was used in this study included both idea generation and idea implementation (Anderson et al., 2014).
Theresa Amabile and Micheal G. Pratt, 2016. (Dynamic componential model for creativity and innovation)	In the dynamic componential model, a significant modification for the role of intrinsic and extrinsic motivation has been suggested as an advancement to the componential model for creativity and innovation developed in 1988. The model acknowledges that extrinsic motivation has a positive role in the creativity process, the model suggests that some kinds of extrinsic motivations have a harmonious effect with intrinsic motivation to stimulate creativity, the process is termed “motivational synergy” (Amabile,1993). This modification was drawn from the cognitive evaluation theory (Deci and Ryan, 1985), it suggests that “informational” extrinsic motivators (which gives people information that allows them to build their competence) are more supportive of intrinsic motivation than “controlling” extrinsic motivators (which makes people feel controlled by an external force). It is noteworthy that this recent study have shed the light and developed an emphasize on the importance of extrinsic motivation, which did not warrant attention in previous research (Amabile, 1988)	The dynamic componential model is however a theoretical model which is not supported empirically yet. In addition, people might react differently to different motivators depending on their personal orientations and the way they perceive those motivators and therefore the assumptions of the model cannot be generalized. It sets the ground for future research opportunities to investigate specific personal orientations e.g. goal orientations as stable personality trait in relation to employees creativity.

3. Research Questions

Although researchers have devoted effort to studying the relationship between those variables (rewards, employee’s creativity and intrinsic motivation) as illustrated in the previous section, it is obvious that the studies that have been conducted have produced contradictory results. In addition, the results of those studies cannot be generalized

either because of the lack of empirical testing or due to the type and relevance of the samples used or because of the differences in the situation and context. Moreover, the comprehension of the relationship between variables is affected by other variables that may act as either mediators or moderators. The following lines will shed the light on the gap found in the existing literature from which this research questions set's its ground.

When studying the relationship between rewards and creativity, researchers arrived at different results. The paradox of rewards was highlighted multiple times in the literature as a challenging unanswered question that entails future research attention (Zhou and Shalley, 2003; Anderson et al., 2014). Some scholars argue that the use of extrinsic rewards leads to diminishing creativity via undermining intrinsic motivation (Amabile, 1996). This view is proved empirically, for instance, Amabile, Hennessey and Grossman (1986) found in a laboratory study that when participants agree to work on a certain task in order to receive a reward (contracted for reward), there is a negative effect on creativity. This is in addition to other empirical studies that demonstrate the negative effect of rewards on creativity (Kruglanski, Friedman and Zeevi, 1971). On the other hand, other scholars suggest that the use of extrinsic rewards enhances creative performance (Eisenberger, 1992). Researchers found that rewards can have informational value which can be used to encourage creativity (Eisenberger & Selbst, 1994; Eisenberger & Armeli, 1997). This position was also supported empirically (Eisenberger, Armeli & Prets, 1998; Eisenberger & Rhoades, 2001). There are also studies that show that extrinsic rewards only have a negligible effects on creativity (Hennessey, 1989; Joussemet & Koestner, 1999). Considering the above mixed results in the literature, there is a subsequent need to investigate specific conditions under which extrinsic, contingent rewards have positive, negative or neutral effects on creativity (Eisenberger & Cameron, 1996).

The use of various moderators and mediators to study the relationship between rewards and creativity is not uncommon in the literature (Deci and Ryan 1985, George and Zhou, 2002; Baer, Oldhum and Cummings, 2003; Janssen and Yperen, 2004; Eisenberger and Aselage, 2009). There are potential important moderators that were hardly investigated and requires future research attention (Anderson et al., 2014). With regards to mediators, in 2004, Shalley, Oldhum and Zhou conducted a literature review on the effects of personal and contextual characteristics on creativity. They found that many studies were consistent with the argument that contextual factors affect creativity via their effects on individuals' intrinsic motivation, yet few studies actually measured intrinsic motivation and tested whether it empirically mediates the context-creativity relation (Zhou & Shalley, 2003). With respect to moderators, many studies used different moderators to understand the relationship between creativity and other contextual

factors, for instance, perceived recognition and reward for creative performance and clarity of feelings were used moderators (George and Zhou, 2002), Job autonomy and time pressure (Wu, Parker and De Jong, 2014). The only moderators used to study the relationship between creativity and rewards was employee job complexity and cognitive style (Baer, Oldhum and Cummings, 2003). In this study it is intended to study goal orientations as moderators of the relationship between rewards and creativity. The reasons underlying the selection of this moderator is first the scarcity of using moderators to study the relationship between rewards and creativity. Second is the usefulness of such moderator to explain the relationship, since the direct relationship between goal orientations (mastery orientation and performance orientation) and innovative performance was previously studied in the literature (Janssen and Yperen, 2004) yielding a negative relationship for a performance orientation and a positive relationship for a mastery orientation. Thirdly, in spite of the results pertaining to goal orientations and innovative job performance, there is still a need for further research to disclose whether the relationship is with creativity or innovation, because (innovative performance) as a used measure does not distinguish between idea generation and idea implementation (Anderson et al., 2014).

3.1. The research gap

This subsection summarizes the gap found in the literature which is intended to be addressed through this study.

3.1.1. The Paradox of reward:

Some scholars argue that the use of extrinsic rewards leads to diminishing creativity via undermining intrinsic motivation (Amabile, 1996). This view is proved empirically (Amabile, Hennessey and Grossman, 1986, Kruglanski, Friedman and Zeevi, 1971). While other scholars suggest that the use of extrinsic rewards enhances creative performance (Eisenberger, 1992). Rewards can have informational value which can be used to encourage creativity (Eisenberger & Selbst, 1994; Eisenberger & Armeli, 1997). The later position was also supported empirically (Eisenberger, Armeli & Prets, 1998; Eisenberger & Rhoades, 2001).

3.1.2. The use of moderators:

There are potential important moderators that were hardly investigated and require future research attention (Anderson et al., 2014), goal orientations are part of them. Although goal orientations were previously studied in the literature (Janssen and Yperen, 2004), there is still a need for further research to disclose whether the relationship refers to employees creativity or innovation, because (innovative performance) as a used measure does not distinguish between idea generation and idea implementation (Anderson et al., 2014).

3.1.3. Intrinsic motivation as a mediator:

Many studies were consistent with the argument that contextual factors affect creativity via their effects on individuals' intrinsic motivation, yet few studies actually measured intrinsic motivation and tested whether it empirically mediates the context-creativity relation (Zhou & Shalley, 2003).

The result of this study aims to address this gap in the literature and contribute to goal orientation theory by demonstrating the link between rewards and employees creativity moderated by goal orientations (mastery and performance) and mediated by intrinsic motivation..

This review leads to the following proposed research questions:

1. How does intrinsic motivation mediate the relationship between rewards and employee creativity?
2. What is the relationship between rewards and employees creativity for employees with mastery goal orientation? (Positive/negative)
3. What is the relationship between rewards and employees creativity for employees with Performance goal orientation? (Positive/negative)

4. Research Context

In this research it is aimed to study creativity and work motivation in the kingdom of Bahrain. Creativity and innovation have recently received a major attention of Gulf Cooperation Council (GCC) countries. GCC countries are looking to evolve in an innovation-driven economy as those countries recognize the essential role of innovation in creating future economic wealth (Gackstatter, Kotzemir and Meissner, 2014).

According to the global innovation index for the year 2018, Bahrain's GII rank is 72 which gives Bahrain the last rank among all GCC countries for the same year as shown in Figure 1, Whereas United Arab Emirates is ranked 38 globally and the first among GCC countries from the 130 innovative countries' index.

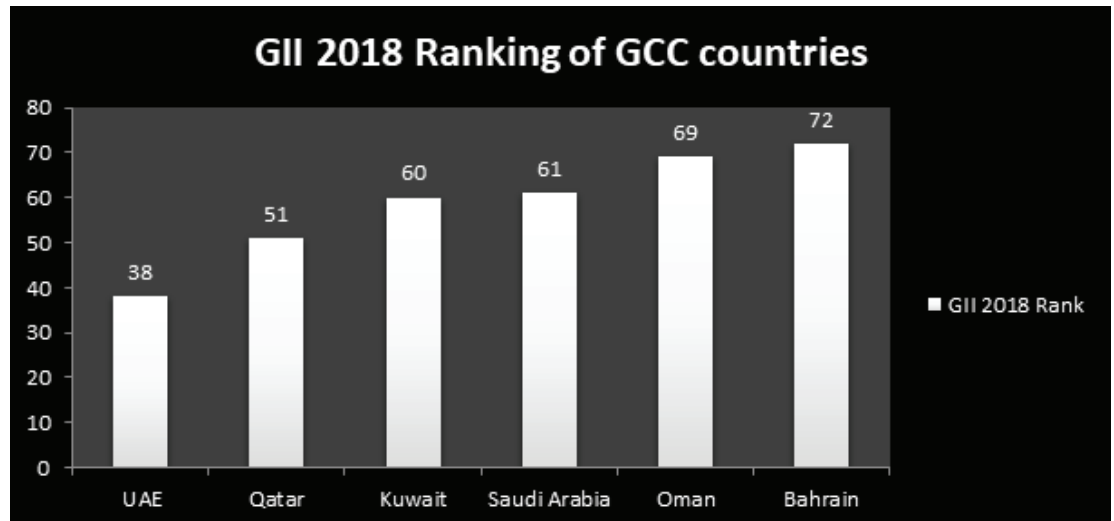


Figure 1: Global Innovation Index ranking of GCC countries in 2018 (Source: Adopted from Global Innovation Index, 2018).

Figure 2. shows the components of the global innovation index, namely (institutions, human capital and research, infrastructure, market sophistication, business sophistication, knowledge and technology outputs and creative outputs), it serves to compare the global ranking of the GCC countries in the year 2018. As illustrated in Figure 2., Bahrain is ranked the last in (institutions innovation) whereas UAE takes the first place in this category. According to GII, the institutions pillar comprises of political, regulatory and business environments, in which Bahrain suffers from income group weakness.

Not only did Bahrain score poorly compared to its neighbor GCC countries, but also Bahrain's innovation ranking has been gradually deferring compared to its own global ranking in the previous years as shown in Figure 3.

Bahrain's delayed global rank for innovation calls for further enhancement, from which this study bases its ground aiming to discover clear links leading to employee's creativity and innovation in Bahrain. Therefore, this study aims to demonstrate the relationship between employee's motivation and their creativity and innovation in the work place by conducting an empirical study in Bahrain. Clarifying the ties of this relationship is capable of guiding practitioners and managers in their selection of the right form of motivation to enhance the creativity of their employees which consequently leads to enhancing Bahrain's global innovation index ranking.

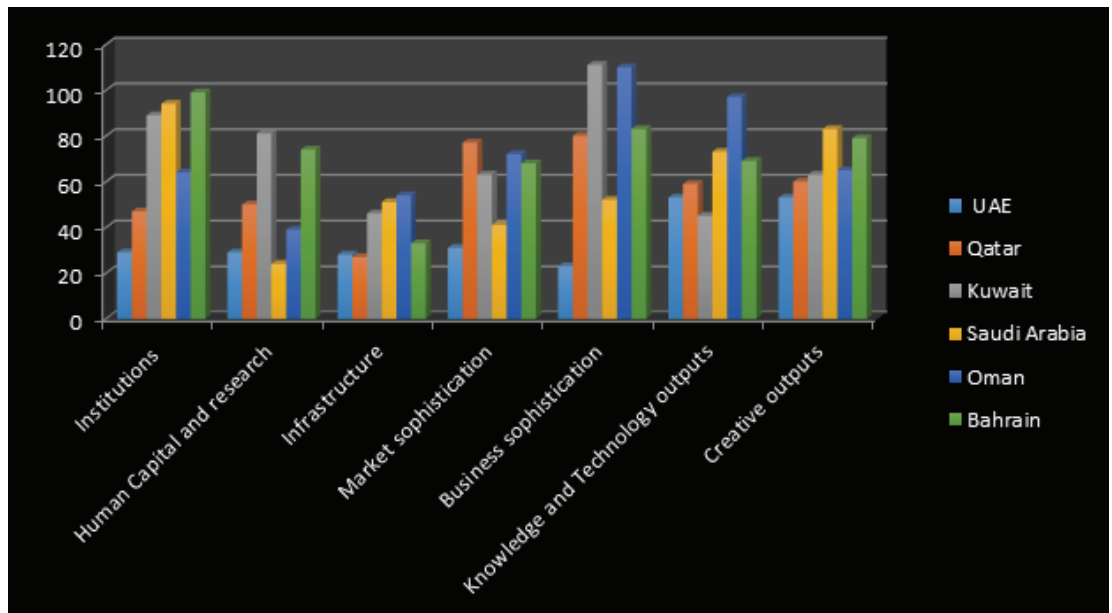


Figure 2: GCC countries global innovation ranking breakdown in 2018 (Source: Adopted from global innovation index, 2018).

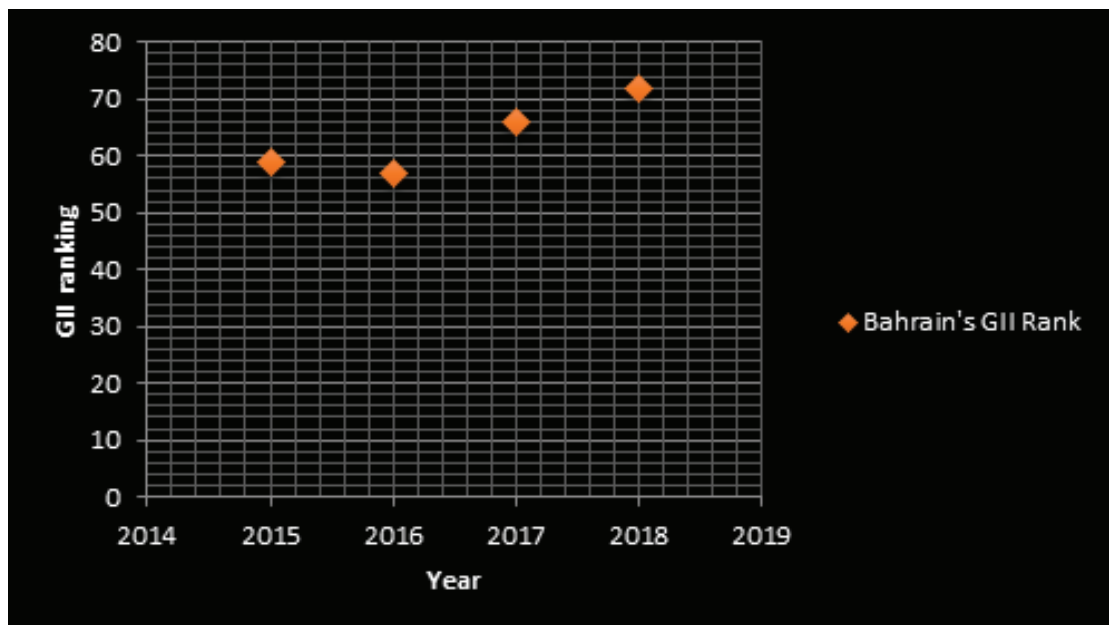


Figure 3: Bahrain's Global Innovation index ranking 2015-2018 (Source: Adopted from global innovation index, 2015-2018).

5. Conclusion

This paper had provided a comprehensive review of the literature on creativity and work motivation. Key theories in the field of employees' creativity and work motivation were presented. It established the background of the research topic by demonstrating clear definitions on the intended variables to be studied in this research such as creativity,

intrinsic and extrinsic motivation. A critique of the existing literature was highlighted from which the research questions were initiated, aiming to build on the previous findings and to establish new results that address those gaps. Finally, the research context was presented.

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Conference Paper

Obesity Review in GCC and New Evaluation Strategy

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Abstract

Purpose: This paper aims to review literature in the area of obesity phenomena and solution for identifying existing research themes and future opportunities to better understand the relationship between factors that affect the obesity and Intervention done and make compassion on what is done globally and in GCC. **Approach:** This paper reviews articles related to obesity factors in GCC such as behavioural and cultural and its effect on behaviours outcomes. This review attempted to identify the main trends in the literature on obesity focussing on environmental, people's eating habits and their attitude toward western foods, governance and policies, socio-economic and socio-cultural causes. **Findings:** Risk factors associated with being overweight or obese are similar in GCC and the rest of the world. However, as the literature indicates that high family income associated with obesity, lack of physical activity and time spent in sedentary activities such as TV watching is significantly associated with an increase in the risk of overweight or obesity in GCC.

Keywords: Obesity/Overweight; obesity causes; Obesity Intervention; obesity rate; obesity socio-Behavioural /cultural factors, Obesity barriers, actions towards obesity framework.

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1. Introduction

Obesity and overweight are considered as an accumulation of excessive fat that may impair health. It has been acknowledged that the prevalence of obesity and overweight extremely increased globally. The growing rate of obesity and overweight has increased the risk of non-communicable disease that deteriorates the healthy lifestyle of people around the world (World Health Organisation 2014; Kilpi et al, 2014; Ahmad et al. 2015). The non-communicable diseases arising from obesity can lead to approximately 36 million deaths each year (Banjare et al, 2016).

According to WHO statistical data for the year 2016, the number of overweight adults is approximately 1.9 billion and on the other hand, approximately 650 million people were obese. On the other hand, 39% of people of age 18 years were found to be

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overweight while 13% were obese. It is a matter of fact that obesity is a serious issue, which can affect people from all over the world.

The similar issue persists in different GCC countries such as Kuwait according to WHO is approximately 30-40% of adolescents and children are obese or overweight and the prevalence rate has been increased to a higher level in Kuwait (El-Bayoumy et al., 2009).

There are different factors, which can contribute to the development of obesity and overweight and the fundamental reason associated with this issue is the imbalance of calories taken and consumed by a person. The other reasons that contribute to the development of obesity or overweight are increased intake of fatty foods, which are also termed as energy dense foods and another global cause of obesity is the decreased physical activity due to sedentary life style resulted from urbanisation (Chahine 2013). In GCC countries including Kuwait, the factors, which contribute towards the development of obesity and overweight are the absence of physical activity, inappropriate eating pattern, and use of sweet beverages, sedentary lifestyle and misconception of people about body image (Musaiger 2011).

2. The Methodology of the Literature Review and Major Literature Trends

This paper associated with the literature review, therefore, the use of key search terms was carried out for the determination of relevant research articles for critical review. The CASP (Critical Appraisal Skills Programme) tool was used for the evaluation of the study. Based on the use of the key search term for the identification of relevant articles from different databases. articles were selected based on the measure of the quality and relevance of these articles.

3. Obesity in the Gulf Cooperation Council (GCC) Countries

Like other countries, obesity and overweight are also prevalent issues in the GCC and there are several reasons behind this issue. In the Gulf countries, the prevalence of obesity among the male population is between 5% and 14%, whereas, among the female population is between 3% and 18%. In adult women, the prevalence of obesity increases significantly with the incidence rate of 2-55% and the incidence of adult males is 1% to 30% (ALNohair 2014). During the last two decades, fast food consumption and

the intake of carbonated drinks with high-sugar content have increased among the younger population (Mandoura, et al. 2017).

3.1. Additional factors with strong impact on obesity in GCC

3.1.1. Economic Boom

Alhyas et al. (2011) carried out a study to examine the prevalence of different risk factors associated with diabetes and complication of diabetes in GCC region. This was literature research, which has determined that prevalence of obesity and overweight is higher in these regions; however, the changes in the prevalence is reported with respect to age, gender, location, and some other factors. Berger and Peerson, (2009) carried out a study to determine the association with lack of physical activity and obesity in females. The mixed research methodology was used for the determination of this association. The outcomes of this study determined that there is a strong association between obesity and different chronic issues.

Klautzer et al. (2014) demonstrated the prevalence rate of obesity and the intensity of the issue.

The research approach was the critical review of the literature. The outcomes obtained from this research have demonstrated that marked increases in the prevalence of obesity and different chronic diseases have been reported. Among different diseases that are associated with the increased prevalence of obesity is type 2 diabetes. The changes in the diet, as well as a sedentary lifestyle due to economic growth, have led to a significant increase in the burden of obesity and diabetes type 2.

In addition, Kumanyika et al. (2013), the complexity of obesity has affected different countries and therefore global action plan is required to tackle this issue. The literature research was carried out to determine prevention and treatment strategies for obesity. According to the outcomes presented by this report, the prevalence of obesity and overweight has not only increased in adults but also in the children. The investment in the prevention of obesity should be carried out for long-term and must be cost-effective.

3.1.2. Lifestyle choices in relation to dietary and physical activity patterns

The change in the lifestyle and dietary habits of GCC countries occur during the last few decades due to increases in the level of their income. Moreover, the GCC countries have

experienced a rapid change in dietary habits and lifestyle during the past three decades (Chomistek et al., 2015). The population of the GCC countries has been adopting the sedentary lifestyle, such that the individuals are habitual of leading a luxurious life having either no or very limited physical activity levels (Klautzer et al, 2014).

Approximately 20-25% of males of the GCC countries are habitual of performing physical exercises, whereas, only 6-10% of the females have been practicing physical exercises. (Mabry et al. 2016)

3.1.3. Body image Perception and Beliefs of People about Obesity in GCC countries

Grenon et al. (2016) and Tatangelo et al. (2016) presented the fact that the image dissatisfaction is higher in females in comparison to males. Mabry et al. (2016) assessed the physical activity levels of approximately 3000 adult males by using the population-based household survey and found that the unmarried males belonging to the age groups of 30-39 years were more than twice as likely to be physically active.

In addition, Mabry et al. (2016) also found that the unmarried females aged 40+ years were less likely to be active as compared to their married counterparts. In addition, working women were found to be more active, as compared to the housewives. In the adolescence, the body image perception is a significant factor, such that the obese or overweight young individuals are at an increased risk of underestimating as compared to the individuals with normal body weight (Tatangelo et al. 2016). Most of the population in GCC countries believed that the individuals receive illness and wellness on the will of God (Klautzer et al, 2014).

3.2. Background to the GCC Healthcare System

A systematic review of the GCC countries assessed 20 Saudi studies, 7 Kuwaiti studies, 3 Bahraini studies, 8 Emirati studies, 4 Omani studies and 1 Qatari study of the relevant populations within those countries (Alhyas et al, 2011). The review demonstrated that there were differences in the pattern of obesity and diabetes in the GCC region. There was an observed bias of being overweight and obesity in the female population but that was not clear mirror in the population distribution of diabetes.

The total expenditure of the GCC government on the health care is approximately 7% of the annual budgets for the management of the health of the patient; however, the total expenditure of Organisation for Economic Cooperation and Development countries

(OECD) is 17%. The reformation of the healthcare system of Kuwait is designed by considering the Kuwait Development Plan (KDP) and the total amount decided for this developmental plan is KD31bn. This reformation is based on a five-year plan 2015-2020. Considering the KDP framework, the plan of the KDP framework is aimed to construct different hospital extensions and eight hospitals. The critical review of the health care system in the GCC has demonstrated that the health care system is good, yet there are some gaps in the social system (Winnick and Porretta 2016)

3.3. Approaches to mitigate against obesity/being overweight in GCC

3.3.1. Public health initiatives

Saudi Arabia Health Vision 2050 involves all sectors of government for controlling the issue of obesity, cardiovascular diseases, and diabetes (Kumanyika et al., 2013).

Ministry of Health in Bahrain is also working on the vision to reduce the prevalence of obesity Musaiger et al. (2011). Likewise, Kuwait responds to the obesity crisis in 2013 by implementing the National Program for the Construction of Health Housing in Kuwait (Behbehani 2014). Examples of initiatives include the National Obesity Program in Kuwait and National Support for Saudi Arabia that put effort against overweight and obesity and to promote exercise and healthy eating (Kumanyika et al., 2013).

3.3.2. Nutritional and lifestyle programmes

Considering the importance of preventive measure for obesity, the national committees have been developed by Kuwait for the introduction of healthy nutrition for children and engage them in different physical activities (Boodai et al., 2014). The Sultanate of Oman proposed a National Nutrition Monitoring Program (2006-2010) to collect data on nutritional status (Alshaikh et al, 2017). The Ministry of Health of the United Arab Emirates formed a national committee in 2010 to develop a national strategy for reducing obesity and diabetes. (WHO, 2010)

3.3.3. Bariatric surgery in the Gulf region

The International Federation for the Surgery of Obesity and Metabolic Disorders (IFSO) have presented the fact that Kuwait is considered the second rank among 50 countries worldwide who are carrying out bariatric surgery cases (Buchwald 2013). Written and

informed consent and positive psychological evaluation were done for the children and adolescents aged 5 to 21 years with obesity.

3.4. Actions taken against Obesity in GCC and Other Countries

3.4.1. Global Weight Management Market Overview

The healthcare authorities have been emphasizing on the intake of a low-calorie diet, fresh fruits and vegetables, proteins and fibres are likely to assist in reducing the risk of prevalence of obesity (Buckland et al, 2015). In addition, the healthcare authorities have also emphasized that avoiding the consumption of beverages and soft drinks, sweeteners, fast food, and fatty diet can assist in reducing the risk of weight gain and leading a healthy life as obese individuals. In addition, the research outcomes also declared that the utilization of strength training equipment, body composition analyzers, and the fitness monitoring equipment could also assist the individuals at risk of weight gain and suffering from obesity in the adulthood. Other techniques, which are used for dealing with the epidemic of obesity, includes a surgical interventions (Buckland et al, 2015)

3.4.2. Obesity surgical strategies

TABLE 1: Table data reference KLSC. GCC AND MENA Obesity & Diabetes Report -2015.

<p>Global obesity surgery devices Market Overview</p>	<ul style="list-style-type: none"> ● Expenditure global obesity surgery device market approximately USD 1.43 billion in the year 2014. ● Market is anticipated to increase from the year 2014 and reach USD 2.49 billion in the year 2030. ● Roux-en-Y gastric bypass is the most common surgical procedure performed for treating obesity.
<p>The obesity surgery devices market in GCC overview</p>	<ul style="list-style-type: none"> ● Most countries of the world including the GCC countries have been focusing on a nutrition plan. ● GCC countries have taken Public Health initiatives and have been running national campaigns to disseminate the awareness regarding the healthier practices and the health issues related with obesity. ● But still special attention is required to change the attitude towards the food and its contents in relation to obesity. ● Among highest rate of countries do bariatric surgery.

3.4.3. Market Dynamics:

Global market for obesity treatment, which was estimated at US\$ 1.43 billion in 2014, is projected to grow at CAGR 9.6% to US\$ 2.49 billion by the year 2020 (Swinburn, et al., 2011) and expected to reach USD 1.23 billion in the year 2020.

The increment in the market of the surgical procedures for obesity is due to the continuous increment in the rates of prevalence of obesity, the sedentary lifestyle, intake of junk food, and lack of physical activity levels (Swinburn, et al, 2011).

3.4.4. Barriers to Implement Obesity Prevention Interventions

A range of interventions could assist in reducing the rates of prevalence of obesity. However, the healthcare authorities are at risk of having trouble in prescribing the most effective interventions for reducing the prevalence of obesity (Weichselbaum et al., 2013).

4. Framework Overview Discussion

In this regard, a number of studies were conducted to evaluate and analysed the factors that play a vital role in the incremental ratio of obesity throughout the world. In the prior studies, researchers adopted various research framework depending on the need and requirement of the studies conducted with the light of theme (Sherif and Sumpio, 2015).

Michie, et al. (2014), conducted a qualitative research study evaluate behaviour change wheel in the context of obesity issues faced by people. behaviour of consumer towards the food, activity is expressed as the dependent variable. to ensures these people behaviour is one of the key influencing the variable on obesity. Therefore, it has also observed that motivation, capability and opportunity are independent variables resulting strong impact on consumer behaviour.

In another research study by Novak, & Brownell, (2012), analysed the USA government policy roles in the obesity epidemic. To conduct this study, researcher adopted a qualitative research approach to evaluate the behaviour of people in the context of obesity. In this study, researchers moved with descriptive and explanatory research approach in light of the constructed research question. Finding was summarised in reducing obesity will need cahnges done on policy that could improve food and physical activity defult for all americans.

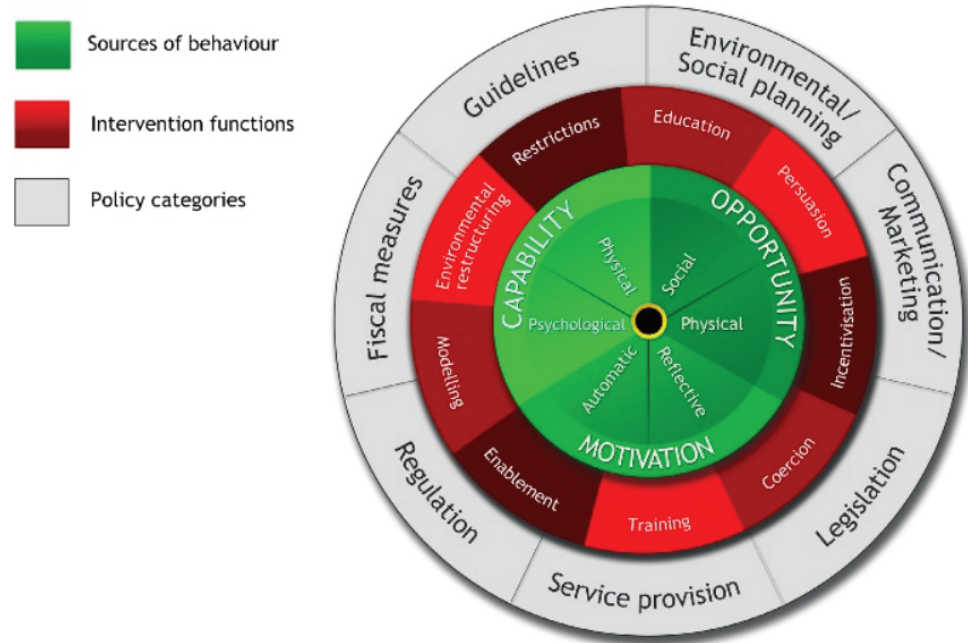


Figure 1: Behaviour Wheel. Adapted from Michie, et al. (2014).

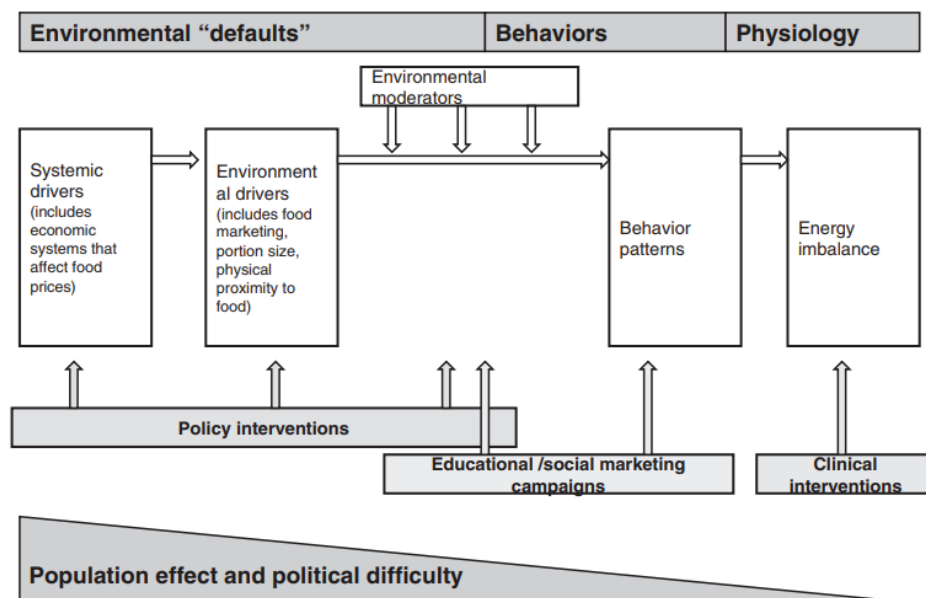


Figure 2: Framework to classify causes of obesity and matching policy responses. Adapted from Swinburn et al,2011.

Eldredge et al.2016, also conducted a study, streamline with the above studies and analyse different perspective of research by induction of programs to control the overweight. A major reason for obesity, to conduct this study qualitative research techniques was adopted by implemented and analyse the ethical framework in public health through primary and secondary research data. However, primary data in this study was collected through research questionnaire techniques. This study follows the

qualitative research approach and highlights the ethics framework for public health presented by Kass

5. Recommended Framework

In light of the above discussion, a research framework is recommended to conduct this research study. As mentioned above, the research framework is an auspicious standard designed guideline to conduct the research study. In the context of constructed research aims and objectives, it is recommended to adopt a mixed research methodology approach. Whereas, this study is conducted on a demographic basis of the GCC region to evaluate the research questions about obesity awareness among the said region people.

6. Limitations

The literature review possesses complex nature, resulting in limitations to the applicability of research outcomes. Literature review lacked the perspectives of healthcare professional and the perspectives on of the GCC countries, which is the potential limitation of this paper.

7. Discussion and Conclusions

Almost all of these research studies have shown that obesity is a serious issue but the people are neglecting health, consume several junk foods, and are spending life in a sedentary way, which can lead to several issues (Zaghloul 2013). The review has presented different factor, and most common factors identified are an economic boom, intake of fatty foods, which are also termed as energy dense foods and another global cause of obesity is the decreased physical activity due to sedentary life study due to urbanisation. Most of the studies have demonstrated different risks factors and interventions for the reduction of obesity, yet the significance and outcomes obtained from the practical implication of interventions are not presented in most studies. In summary,. Over the last two decades, more emphasis is placed on the consideration of the psychological, social, cultural and behavioural aspects related to the treatment of obese people and to decrease the chances of people to get overweight and obese. Different treatment approaches, which are available for the management of diabetes are not only effective to make changes in the dietary pattern of people but is also

effective to provide social, behavioural, and emotional strength to the people to bring changes in lifestyle. That lead to impact on prevention of obesity.

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Conference Paper

Plural Leadership During Organisational Transformation Initiatives (Vertical & Horizontal)

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Abstract

Organizational transformation and change scholars and researchers published many articles linking and studying the effect of vertical (transactional) leadership and horizontal (transformational) leadership on organizations during transformation. As much attention has been given in the last two decades to transformational leadership as being one of the trendiest leadership styles that focuses on the relation between followers and leaders to achieve better performance during organizational transformation, transactional leadership is still of benefit. This paper bridges organizational transformation and leadership literature and show the importance of transformational (horizontal) leadership alongside transactional (vertical) leadership in achieving efficient performance and optimal results during organizational transformation.

Methodology: A literature review will be conducted based on literature related to certain key word and through a systematic literature review protocol.

Keywords: Organizational transformation, leadership, transactional leadership, transformational leadership.

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1. Introduction

Leadership is a challenge in global economy where business environment is dynamic and competitive. Coping with such competitive economic environment requires organisations to transform and go through organizational changes to be able to keep up with business trends. Global markets and geopolitics environment fervently evoke organizations, whether large or small to apply changes and modify the way they do businesses, or even change their organizational cultures and beliefs. In the current business environment an essential contingent upon how organization can manage to cope with change, especially changes that are generated from strategic decisions (Levene and Braganza, 1996). Organizational change is a necessity for organizations to survive and prosper. Most organizations compete by changing continuously (Brown & Eisenhardt, 1997; Weick & Quinn 1999). One approach leader can take to create a

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competitive advantage is to cultivate an organizational climate which promotes change. Organizations that are vigorous at making incremental as well as radical changes are better positioned to survive tough environment (Henderson & Clark, 1990).

Organisational transformation is a whole process which depends on the efficiency and success of such changes which depends on the way those changes are executed and introduced to organizations population. Proper organisational changes execution are dependent on how good and effective leadership is. Leaders and followers are key elements to efficient implantation of change (Kempster et al., 2014; White et al., 2016). As the leadership subject is an area of interest many scholars and researchers, many theories and researches has been published and many leadership styles has evolved. These theories and leadership styles will be discussed in this paper.

This paper will highlight the importance of transactional leadership as an important and significant aspects of change management that results in achieving continuous performance and relationship improvements during organisational change alongside transformational leadership with more focus on middle and lower management and employees as previous studies show results of transformation leadership on Quality and employee performance during organisational transformation. The objective of this research is exploring the need for traditional transactional leadership and charismatic transformational leadership and its impact on achieving results during organisational transformation. This study will also explore the need of implementing social network leadership approach to improve performance and ensure collective changes when organizations are going through its transformation phase.

This paper is organised in the following sequence. First, we will be reviewing literature related to organisational transformation, leadership theory in a chronological sequence to see how leadership theory literature developed overtime. The paper focuses on the relation between organizational transformation and leadership theory. Then, we will discuss the importance of plural leadership during organisational transformation. Finally, the paper will be concluded with potential areas for future research.

2. Research Background

Organisational transformation is a process where leadership style and leaders are the means of implementing those changes efficiently, continuously, consistently and accurately. The dilemma of which leaders and which leadership styles should be used as a mean of implementing those changes still exists. Many studies, researches and scholars had arguments in defending different leadership styles (Brown & Eisenhardt,

1997; Weick & Quinn 1999; Feldman & Pentland, 2003). Those arguments create connections between different Schools of thoughts as some still believe in old school methods of leadership while others believe in new trendy leadership styles. As many researchers highlighted the importance of having transformation leadership to mitigate tension and facilitate the efficient performance of employees (Bass & Riggio, 2006; Pawar & Eastman, 1997). Transformational leadership is often linked with managerial effectiveness during the organisational change. Transformation leaders recognise the need for change. Transactional leadership on the other hand reflects as leader of appetite towards identification of followers needs and aspiration (Jung, 2001; Paracha et al., 2012). The transactional leadership style developed by Bass is based on the hypothesis that followers are motivated through a system of rewards and punishment. Transactional leadership is associated with strong organizational cultures that are directive, top-down and evolves around the power and position of those leaders.

Unlike conventional leadership approaches, horizontal transformational leadership requires executive's engagement, empowerment and facilitating to connect and interconnect disparate organisational elements. Having said that proper implementation of changes has to be executed through different and various leadership styles and schools (Denis et al., 2001; Schneider, 2002). Making the best of these leadership styles and theories should have positive impact, boost performance, and implementation of the desired continuous changes imposed by stakeholders and board members. The research problem is to argue if transactional leadership alongside transformational leadership would add more enhancement towards maximizing the implementation of organizational transformation.

3. Literature Review

3.1. Organizational transformation

Organizational transformation is an organizational change that goes beyond a mere change in systems to a process that deeply penetrates different organizational layers in order to achieve utmost satisfaction and positive perception of the organization's aspired goals and objectives. One of the definitions of organizational transformation is a term which refers broadly to such activities as re-engineering, redesigning and refining operational systems or a change in the manner the business is carried out in the event of the re-engineering or the restructuring activity. Some studies of corporate transformation hold the opinion that growing, incremental additional capabilities need

to be further consolidated progressively by firms in order to transform or “rejuvenate” themselves (Francis, Bessant and Hobday, 2003). Furthermore, organizational change is often termed as either incremental or radical (Barezak et al., 2012). Morris and Brandon assert that organizations should position their re-engineering (redesign) projects alongside other change initiatives and schemes taking place including total quality, redesign and empowerment. Additionally, Hammer 1990 holds the opinion that organizations which have made incremental changes, can usually improve what was done earlier by changing a single variable, within the functional structure. In today’s economy competitive organizations are those who adapt to markets changing environment and global economy and are able to transform themselves by allowing deep organisational layer changes. It’s clear that the main pillar and foundation of the organizations is its ability to satisfy its needs (French and Bell, 2006). However, transformation is observed as an all-pervading, universal, and multifaceted process within a specific business frame and presents vast and immense challenges to any system (Beckhard, 2006). The challenge of organizational transformation in complicated business patterns would primarily require profound depth and insight of theoretical examination, such as exploring possible combinations of individual and plural outlooks of leadership at the pinnacle of the organization (Denis et al, 2012). Yet the literature continues to focus largely on the individual who leads the transformation, rather than on the plurality of individuals and their interactions (Kempster et al., 2014; White et al., 2016). Transformation is a facilitation of radical shift in the organization values, culture, structure, routine and how business is done (Bartunek and Louis, 1988).

As discussed above this paper look at organizational transformation as the mean for organizations both private and public to enhance not only their productivity but run on more efficient performance and internal satisfaction of individuals. The importance of organizational change and transformation emerges from the need to cope and elevate the way business is done throw those changes. With organizational change raises the importance of having a combination of leadership styles and approaches to lead the organization towards achieving those changes. Organizational transformation can take many different forms from radical to incremental to continuous(morphing). Each form of transformation might require different combination of leadership styles.

3.2. Leadership Theory

There are many various defining terms of leadership and numerous scholars who have endeavoured to outline the leadership concept (Bass, 1981) which we see in Table 1

below. The meaning of leadership isn't simply about an individual or a group of individuals at the peak of the hierarchy and chain of command in an organization. Leadership is a process, act or endeavour to exert influence on followers and juniors. Leadership is principally an interpersonal influence, performed in a certain situation, and directed through the communication process toward the achievement of a certain goal or goals (Weschler and Massarik, 2013). It's a social process in which one individual exercise influence on the behaviour of others without the use of warning or violence (Buchanan & Huczynski, 2010) and the process of influencing the activities of an organized group in its efforts toward achieving a certain goal (Stogdill, 1950). Generally speaking, leadership is the influencing process of leaders and followers to achieve organizational objectives through certain changes (Lussier & Achua, 2004). It's the incremental influence that a person has beyond his or her formal authority (Vecchio, 1988). Leadership is a process where one individual sets a purpose or a direction for one or a group of individual and get them to move alongside each other in that direction with competence and commitment (Jaques E. & Clement, 1994). An influential and visionary leader makes his followers and team members self-convinced that changes and transformation of the organization is vital and essential to the survival and growth in challenging, highly competitive and volatile environments. Since 1980s, the literature on organizational change leadership has been largely influenced by performance models advising on where leadership can be found and how it can lead to change (Bass, 1985; Kotter, 1988; Kuipers et al., 2014).

TABLE 1: Leadership definitions.

Reference	Leadership definition
Follet (1925)	" It is possible to develop the conception of power-with, a jointly developed power, a coactive, not a coercive power"
Pigors (1935)	" Leadership is a process of mutual stimulation which, by the successful interplay of individual differences, controls human energy in the pursuit of a common cause"
Stogdill (1950)	"Leadership may be considered as the process(act) of influencing the activities of an organised group in its efforts toward goal setting and goal achievement"
Gibb (1954)	"Leadership is probably best conceived as a group quality"
Hemphill & Coons (1957)	" Leadership is the behaviour of an individual when he is directing the activities of a group toward a shared goal"
French & Raven (1959)	"Our theory of social influence and power is limited to influence on the person, P, produced by a social agent, O, where O can be either another person, a role, a norm, a group or part of a group"
Prentice (1961)	"Leadership is the accomplishment of a goal through the direction of human assistant. A leader is one who successfully marshals his human collaborators to achieve particular ends"
Dansereau et al. (1975)	"The vertical dyad is the appropriate unit of analysis for examining leadership processes"
Hollander (1978)	"Leadership is a process of influence between a leader and those who are followers"

Reference	Leadership definition
Burns (1978)	“Surely its time that....the roles of leader and follower be united”
Vecchio (1988)	“Leadership is the incremental influence that a person has beyond his or her formal authority”
Frenandez (1991)	“We argue that leadership, particularly that aspect of leadership which is reflected in respect, is inherent in the relations among individuals, not in the individuals themselves”
Schein (1992)	“Leadership is the ability to step outside the culture to start evolutionary change processes that are more adaptive”
Meindl (1995)	“The romance of leadership notion emphasizes followers and their contexts for defining leadership itself and for understanding its significance”
House et al. (1999)	“Leadership is the ability of an individual to influence, motivate, and enable others to contribute toward the effectiveness and successes of the organisation”
Hogg (2001)	“Leaders may emerge, maintain their position, be effective, and so forth, as a result of basic cognitive processes”
Pearce & Conger (2003)	“Leadership is broadly distributed among a set of individuals instead of centralized in hands of a single individual who acts in the role of superior”
Howell & Shamir (2005)	“Followers’ self-concepts play a crucial role in determining the type of relationship they develop with the leader”
Balkundi & Kilduff (2006)	“Our network approach locates leadership not in attributes of individuals but in the relationships connecting individuals”
Lo (2008)	“Leadership is a communication process of maximizing people potential and influencing people to achieve a shared goal, in a given situation”
Friedrich et al. (2009)	“Multi individual within the team may serve as leaders in both formal and informal capacities”
Yukul (2010)	“Leadership is the process of influencing others to understand and agree about what needs to be done and how to do it, and the process of facilitating individual and collective efforts to accomplish shared objectives”
DeRue (2011)	“Leadership is a social interaction process where individuals engage in repeated leading-following interactions, and through these interactions, co-construct identities and relationships as leaders and followers”
Eberly et al. (2013)	“We posit that what gives rise to the phenomenon of leadership is a series of often simultaneous events cycles between multiple loci of leadership”
Yammarino (2013)	“Leadership is a multi-level.. leader-follower interaction process that occurs in a particular situation(context)where leader and followers share a purpose and jointly accomplish things willingly”
Lord & Dinh (2014)	“Leadership is a social process that involves iterative exchange processes among two or more individuals”

One of the most defining challenges for leaders is carrying out planned organizational changes that broadly correspond to premeditated interventions intended to modify organizational functioning towards more favourable results (Lipps, Watson & Westly, 1958). A large number of leadership studies which tackle the relationship between leadership and change do not, however account for the complexity of intra-organizational processes (Yukl, 1999), including the complexity of the organizational change implementation process, which involves a wide spectrum of activities. The planned organizational

change implementation involves different activities in which leadership competencies might play different roles and has therefore been ignored by leadership literature (Higgs & Rowland, 2005). This research argues that leadership competency is essential and vital in achieving the planned organizational changes that has been imposed by stakeholders or board of directors. The complexity of leadership required competent and visionary leaders to lead the organization towards the efficient implementation of those planned changes (Lipps, Watson & Westly, 1958). The organizational transformation literature highlights the complexity of change process as well as leader's role in various transformation implementation activities. The common assumption of most of these studies is that change agents are competent and has the required skills and abilities to play their roles in various change implementation activities.

Nevertheless, leadership is termed by scholars and researchers to traditional and newer leadership theories. Leadership theories traced back from the early twentieth century to the late 70's is referred to as traditional leadership theories, which largely emerged and developed from the 80's to early twenty first century where identified as newer leadership theories (Avolio et al., 2009). At the beginning of this century more team, collective and network focused leadership started evolving and developing alongside the new evolutionary global leadership theory which emerged recently. We will focus on newer leadership theories. Leaders' characteristics can result in better execution of the transformation initiatives taken by the organization (Higgs and Rowland, 2011). Many of leadership theories that have emerged and evolved during the last century has been modified and refined to meet the changing volatility of the business environment. We will be briefly discussing in the next section of this research traditional, newer, team/collective and global leadership theories. This research will principally concentrate on the significance of horizontal and vertical leadership in underlining organizational leadership during organizational transformation.

3.2.1. Traditional leadership theory

Traditional leadership theories include: trait-based theories, behaviour theories, situational/contingency leadership theory and leader follower model theory.

Trait based leadership theories

Great man leadership theory was the first leadership model to evolve in the beginning of the nineteenth century stating that " leadership qualities were inherited" (Hernandez

et al., 2011, p. 1169). Great-man leadership soon transformed to what was known later as trait leadership theory or a heroic leadership theory that is based on the characteristics of the leader and his ability to motivate the patterns of follower's behaviours by positive influence. Trait-based theories is based on the belief that "certain personality characteristics distinguish leaders from non-leaders" (Hernandez et al., 2011, p.1169). Trait-based leadership has been extended to include neo-trait approach emphasizing "the need to understand the psychological mechanisms through which traits translate into leadership effectiveness" (Hernandez et al., 2011). In this approach raises the argument that "trait alone is not sufficient for business leadership they are only a precondition" (Kirkpatrick and Locke, 1991, p.49). Trait-based theories became famous in the 19th century some of the earliest leadership literature and research studied people who were successful leaders already (Turner and Baker, 2018). Many scholars have argued that leaders were a result of societies they lived in.

As trait-based leadership theories are considered by some scholars and researchers as an obsolete leadership style and theory.

Behaviour leadership theories

Behaviour leadership theory is the opposite of trait-based leadership theories as it focuses on the leader's behaviour and action rather than trait and leadership skills (Turner and Baker, 2018), behaviour leadership theory believes that "great leaders are made not born". Behaviour leadership was the natural evolution of the great man theory as it identifies certain behaviours that determines and identifies leaders (Hernandez et al., 2011).

Situational/contingency leadership theories

As researchers and scholars moved away from trait and behaviour-based leadership theories the quest of leadership theory search started. Scholars identified a new theory at that time which matches leaders' behaviours with their follower's capacity of handling different roles and achieving designated goals set by the leader in different situations (Hernandez et al., 2011). The main driver of this theory at that time was the motivation of employees and followers by looking at the leader's management style and the environment he/she is operating in (Fiedler, 1976).

Leader/ follower model

This leadership style or theory focuses on the response of leaders to followers' capabilities and abilities to adapt to changes and perform efficiently (Fiedler, 1976). The attention to the level of interaction between leaders and followers and the level of follower's maturity in term of the understanding challenges facing the organization and the need for change (Lord, 1977) are important factors of such leadership style.

3.2.2. Newer leadership theories

Newer leadership theories are somewhat charismatic, inspiring in the relationship between leaders/followers and transactional. Avolio (2009) outlined new approaches to leadership which "emphasized symbolic leader behaviour, visionary, inspirational messages, emotional feelings, ideological and moral values, individualized attention, and intellectual stimulation" (Avolio et al., 2009, p. 766). Those new approaches to leadership resulted in new ways of looking at and understanding the concept of leading and being led. New leadership charismatic and transformational leadership where the centre of interest to scholars and researchers in the past two decades (Avolio, 2009). Newer leadership models are believed to bring followers to "higher levels of inspiration, aptitude, and performance" (Avolio et al., 2009, p. 766).

Newer leadership theories have mainly concentrated in the past two decades on transformational and transactional leadership as the most effective and efficient leadership styles. Those studies and researches have outlined many gaps in leadership which are related to the relationship between followers and leaders', while other studies have highlighted the need of newer leadership style (Turner and Baker, 2018) that looks at the macro management of organizational transformation through most suitable leadership style. The need for an efficient leadership style that interconnects various change agents that are accountable for the proper implementation of those required changes is essential.

3.2.3. Collective/team leadership theory

Collective or team leadership theory is an approach to leadership which is leveraged on the human aspects focusing on individual and encouraging their positive participation in decision-making process (Arredondo Trapero & De Lozada, 2010). Collective

approaches to leadership are built around the concept of moving from a single leadership to a leadership model where “followers and groups exercise shared leadership to initiate transformative change” (Eberly et al., 2013, p. 427). Collective/team leadership theories are decentralized where leadership can be rotated or shared based on the situation and current challenge facing the organization, operating at multilevel, formal/informal and dynamic in its approach to leadership as leaders are encouraged to be proactive in their leadership (Friedrich et al., 2014).

3.2.4. Global leadership theories

Global leadership theories are those newer theories that recognize the complexity of leadership such as instrumental, process and global leadership theories. Global leadership theory is a new approach based on the idea that leadership can take place globally and across different geographic locations (Steers et al., 2012). Few studies and scholars have looked into this leadership approach as it remains an area which is under researched and with a lot to be learned and discovered (Mendenhall et al., 2013). Many scholars have tried to bridge the gap in global leadership literature by identifying the main theory constructs by approaching leadership as a culture and the expected role of global leader (Steers et al., 2012). Global leadership theories approach leadership from two different prospective local or domestic and global or international (Mendenhall et al., 2012). Global leadership theory is defined as “the process of influencing others to adopt a shared vision through structures and methods that facilitate positive change while fostering individual and collective growth in a context characterized by significant levels complexity, flow and presence” (Mendenhall et al., 2012, p. 500). These researchers look at global leadership as influencing and leading individuals or groups of individuals in multiple regions towards achieving the collective organizational goals. Global leadership is about leading through dissimilar cultures and can be looked at as either cultural or universal (Antonakis and House, 2014).

Newer leadership theories as discussed above are especially transformational leadership. Researchers have focused in their studies in past decades of transformational and transactional leadership as the most effective and efficient leadership style. Those studies and researches have highlighted many gaps in the leadership many of them are related to the relationship between followers and leaders’ others were highlighting the need of newer leadership style that look at macro managing the organizational transformation through the most suitable leadership style. The need for a leadership style

that interconnects different change agents that are responsible for the implementation of those required changes.

3.3. Transactional Leadership (vertical)

Weber (1947) and Burns (1978) described three types of leaders and leadership styles in their theories which are transactional, charismatic and transformational leaders and leadership will be discussed in this research. In this section of the review we are going to discuss and describe transactional leadership and how it is perceived by different scholars and different schools of thoughts. Transactional leadership has many descriptions all related to the nature of transactional leadership style. Transactional leadership also known as bureaucratic leadership (Max Weber, 1947) due to its nature as transactional leaders operate in structured bureaucratic environment. Managerial leadership is another name for transactional leadership as transactional leaders pay much attention to the supervising role of leaders, group performance, organizational structures, and demands follower's compliance to changes through incentivising their followers to carry out their expected duties by a strict reward/punishment system. This reward/punishment exchange system rewards employees to be efficient in their performance by meeting leaders' goals and targets on the other hand employees who fail to meet leader's expectation and insufficient performance levels get punished by lower merits and cuts in their incentives until improvement to their performance and outcomes are noticed (Dai et al., 2013). The reward/punishment systems are strictly structured based on mutual agreement and understanding between followers and leaders (House and Shamir, 1993). Vertical leadership is another name or description of transactional leadership as transactional leader operates based on authoritarian concept of leadership in a hierarchy where information and communication flows top-down in a vertical flow.

Transactional leadership was looked at as the most efficient and accurate way of management and organizational change implementation instrument to ensure organizational goals and targets are met in the upmost appropriate mean in the last two decades (Bass et al., 2003). This leadership style manages organizations in conventional way by defining followers' duties and responsibilities as per their job descriptions and as mentioned above by rewarding them for achieving the agreed-on targets or punishing them in the case of individual inability to achieve those agreed goals (Bass, 1999). Transactional leaders pursue high performance and goal achievement of their followers (Prasad and Junni, 2016; Howell and Hall-Merenda, 1999). One of the main issues that

TABLE 2: Advantage and disadvantage of transactional leadership.

Advantage	Disadvantage
Team member motivation to productivity maximization	Strict in rules and regulation
Achievable creation to individual at different levels	Illumination of innovation due to rigidity and unwieldiness
Clear chain of command and hierarchy	Doesn't create leaders as much as followers
Focused on maximization of productivity and cost reduction	Focuses on consequences rather than creativity
Simple implementation	Doesn't take into factor humanitarian factors
Clear punishment/reward system	Reward based motivation only limiting motivation.

makes transactional leader's negative perception in today's world of interorganizational environment is its lack of ability and approach into creativity as they are interested maintain the status quo (Bass, 1985). Such leadership is very effective during emergencies and in environment where strict rules and regulations are essential to carry out individual responsibilities safely and professionally (Dai et al., 2013).

3.4. Transformational leadership (horizontal)

The concept of transformational leadership was described by Bass 1978 as a leadership style that focuses on the relationship between leaders and followers. In his work transformational leadership was studied as a political leadership potential for political parties and government sector. The transformational leadership theory was expanded later to a broader area of implementation and applicability in organisational leadership (Bass and Avolio, 1994). Scholars and researchers have shown great interest in studying the connection between organizational transformation and its influence on organizational performance during organisational transformation (Judge and Piccolo, 2004). Unlike transactional leadership theory, transformational leaders don't depend on the rewards exchange system. Transformational leaders depend on the understanding of their followers needs. Transformational leaders lead by example as they position themselves as role models for their followers in order to achieve mutual trust and gain their confidence. Transformational leaders seek to motivate followers by understanding their needs, requirement and align their personal interest, values to the collective organizational interest (Bass et al., 2003). Leaders are able to influence and convince their followers by stressing the importance of change to the organizational growth and future vision of the company which leads to prosperity and personal employees benefit (Hamdsta et al., 2014). Followers are encouraged by leaders to look at organizational as an opportunity

for followers to learn and be more competent (Hetland et al., 2011). Followers are treated as independent individuals (Bass 1985), and are aware of the importance of improving their capabilities, raising their competencies, and skills (Melvyn Hamstra et al., 2014). Transformational leaders are those who inspire followers to perform outstandingly and achieve optimal results (Robbins and Coulter, 2007). Warrilow (2012) has identified that charisma, influence, inspirational motivation, intellectual stimulation, and attention are the six transformational styles.

TABLE 3: Advantages and disadvantages of transformational leadership.

	Advantage	Disadvantage
1	Retain employees	Can develop negative outcomes.
2	Higher productivity by satisfying followers demands	Depends on continuous communication which might be unachievable sometimes.
3	Influences others to adopt to organisational changes	Get Constant feedback to maintain the enthusiasm within the group or team.
4	Transformative in their vision	Focuses on individual needs instead of the group or team
5	Creates enthusiasm in work environment	Are not always detail oriented.
6	Excellent communicators and listeners	Ignores protocols

Transformational leaders are inspiring, and charismatic leaders who motivates employees by achieving organizational collective goals (Burns, 1978). This motivational effort inspires followers to share the organizational vision encouraging other individual. Burns (1978) identified the main four characteristics of transactional leaders. First, they are instrumental in their abilities to attract individual who value their charisma, and are inspired by them. Second, they inspire individual and motivate them to share their vision taking a participating role in the organizational goal achievement. Third, creativity is encouraged by them to solve issue and challenges with out of the box solutions. Fourth, support individuals by helping them grow and mature in their positions, and role to assume leadership role once they are competent. Scholars agree that transformational leaders achieve impressing outcomes (Anderson et al., 2017).

4. Discussion

The subject of organizational change and organizational transformation is of much importance to scholars and practitioners and identified as a process (Beckhard, 2006) where organizations allocate their available resources to ensure the effective execution of the transformational changes as planned. Organization transformation is an essential element of prosperity, continuously, consistency and sustainability (Levene and Braganza, 1996) to organizations and institutions. Organisational change can take

many forms radical to incremental or continuous depending on the business nature and the organization maturity (Francis, Bessant and Hobday, 2003). As this research is highlighting the importance of having plural leadership to be able to execute and implement those planned organizational changes. Plural leadership in this paper refers to combination of transactional and transformational leadership that could be used as an approach to leadership during organisational transformation. Plural leadership is defined as “collective phenomenon that is distributed or shared among different people, potentially fluid and constructed in interaction (Dennis et al., 2012, p. 212). The means of the efficient execution of organizational transformation and change is through leadership. Having the right leadership can ensure the implementation of organizations in their transformation initiatives (Higgs and Rowland, 2011). As this research is discussing the best practice in leadership raises the concept of plural leadership styles mainly talking about combination of leadership styles. Many scholars do describe transactional leadership which was traced back to Max Weber 1947 as traditional leadership. Transactional leadership is called organizational, managerial or conventional leadership as it focuses on the vertical authoritarian relationship and power-driven leadership (Avolio & Bass, 1997). Transactional or vertical leadership is a very effective leadership style and instrument during crises, emergency situations and projects that are needed to be carried out in a specific fashion (Dai et al., 2013). This specific vertical leadership style is conventional but effective (Bass, 1999) and depends on establishing clear goals and setting the right reward/punishment system. This approach to leadership is adopted by many organisations and institutions that take disiplin and punctuality as an important aspect of thie organizational behaviour.

On the other hand, transformational leadership is about employees and individual relationships (Burns 1978) represent the other part of this research which is basically manging teams and departments in a more horizontally and less authoritarian manner. Many scholars and researchers link transformational leadership to effective managerial performance and results during organizational transformation (Bass & Riggio, 2006). In transformational leadership leaders have better understanding of individual require-ment and understands the necessity of changes to their organization, employees are encouraged and inspired by their leaders to execute the institutionalizing change (Bass, 1997). Since transformational leaders urge and direct followers to look at things from a different perspective to achieve exceptional results (Robbins and Coulter, 2007). Transformation leaders are inspiring and influencing leaders who motivate, inspire and influence individual to achieve the overall organizational goals (Bass and Avolio, 1994) which is also achievable by aligning employees interests with the collective

organizational interests (Kuhnert, 1994; Andereson et al., 2017). Having transactional leadership as an approach to leading and managing organisations alone isn't enough. Transactional (vertical) leadership is a directive leadership style that is needed during in crises management and hazardous environment where strict rules and regulations are in place (Binci, Cerruti and Braganza, 2016).

As discussed above in the literature review plural leadership during organizational transformation where there is an authoritarian leadership that is conventional and depends on position, power and authority (Max Weber, 1947) and inspire influential leadership that is built around the employee's satisfaction (Burns, 1978) and alignment of individual interest with organizational collective interest is needed (Kuhnert, 1994; Anderson et al., 2017). Having those two contradicting and complementing leadership styles really insures that organizational changes are executed as changes are communicated and channelled vertically from top to bottom with specified goals and targets (Dai et al., 2013) and horizontally across the board of the organization as well as channelling communication from bottom to top, right to left, left to right (Bass and Avolio, 1990). This literature review has highlighted the importance and need transformational alongside transactional leadership on achieving enhanced performance and quality of relationship between individual, middle management, top management during organizational change process and ensuring the flow of communication top-bottom, bottom-top (Pawar & Eastman, 1997).

Organisation changes are requirements of stakeholders represented by board of Directors or steering committees appointed by those stakeholders to implement changes. The implementation of organizational changes is either structural changes or operational changes that requires the right leadership approach and style. The importance of leaders' role is significant. A proper execution and implementation of planned changes. This research is conducted to explore the importance of having different leadership approaches to different levels within the structure and the hierarchy of the organisation.

5. Conclusion

The paper focused on the impact of implementing horizontal leadership to boost and kickstart positive and efficient performance and result with vertical leadership during organizational transformation. Having transformational leaders' engagement in changes implementation during organizational transformation had a very positive impact and strong enhancement to performance level. It's very clear from the literature reviewed

and discussion that vertical leadership is still seen as the main initiator of changes but having horizontal leadership makes sure that those changes are flowing smoothly within the organization's boundaries and vertically from top-bottom and bottom-top. More effective implementation of changes is achievable due to the efficient communication through different layers of the organization and ensure that all parts and components of the organization shares the same collective interest and realizes the need for change in other words changes are riming in harmony through the organization department to department and division to division. At the end its noticed that there isn't a most efficient leadership as efficiency is circumstantial and can be changing as situations and challenges change due the life course of the organisation. Whoever a shortage in the interaction between leader theories and social network leadership theories was identified as a gap and an area to be researched and studied for future research.

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Conference Paper

Investigating Obesity Related Behaviours in Friendship Networks Among the Youth: A Systemized Review

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Abstract

Background: Unhealthy diet, low levels of physical activity and increased participation in sedentary activities are important obesity related behaviours that negatively impact the health of today's youth. Friends' health behaviours have been found to influence the individual health behaviours; however current evidences on the specific role of friendship networks on obesity related behaviours are inconclusive. The purpose of this review is to profile the existing literature in an attempt to identify the associations between friendship networks and obesity related behaviours among adolescents.

Method: A systemized review of the literature was undertaken after a search of the Scopus database, a total of fifteen articles were eligible for inclusion. The selected publications assessed the association between friendship networks and obesity related behaviours (diet, physical activity, and sedentary behaviour) among the youth.

Results: There is consistent evidence that friends are similar in physical activity; evidence on diet and sedentary behaviour is mixed and limited. Friendship network characteristics seem to associated with obesity related behaviours. Popularity (receiving ties) is likely to be associated with diet, network size and the proportion of active friends is tends to be associated with physical activity and finally network density is associated with sedentary behaviour.

Conclusion: Friendships are critical in shaping young people's obesity related behaviours.. There is extensive research investigating friendship influences on diet physical activity and sedentary behaviour. Future studies should investigate whether friendship influence operate via other obesity related behaviours that have not been explored yet such as sleep. Results from this review are informative for designing effective public health interventions because network based promotion interventions have a promising potential.

Keywords: Social Networks, Friendship, Diet, Physical Activity, Sedentary Behaviour, Obesity

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1. Background/Introduction

Obesity is complex because it is caused by multiple genetic and environmental factors (Hernandez and Blazer, 2006). A high caloric diet, low levels of physical activity and

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increased participation in sedentary behaviour are important behaviours that have contributed to the increased prevalence of obesity among the youth (Wang and Lobstein, 2006). One of the main hypothesized causes of the continued increase in obesity is that current preventative measures are individually targeted and they lack the proper understanding of obesity within the social context (i.e. the effect of social networks) (Nam, Redeker and Whittemore, 2015). The term social networks refer to a set of individuals and the ties among them (Wasserman and Faust, 1994). Social networks pervade our lives on a daily basis: we interact, influence, and are influenced by our friends and acquaintances (Pinheiro et al., 2014). Christakis and Fowler were the first to find that obesity spreads over social network (Christakis and Fowler, 2007). The findings of their study were somewhat controversial as it offered evidence that obesity may spread like an infection. Several studies followed to investigate the sensitivity of Christakis and Fowler's claim and assess the nature and extent of the person to person spread of obesity and could not dismiss their findings (Cohen Cole and Fletcher, 2008; Bahr et al., 2009). Christakis and Fowler's study generated significant interest where the idea of communicability (contagiousness) of obesity was originated. It is increasingly acknowledged that social networks are important to our understanding of obesity (Powell et al., 2015). The specific dynamic mechanisms underlying the spread of obesity remains an important gap in the literature, and is the focus of a growing body of research (Burke & Heiland, 2006; Bahr et al., 2009; Shoham et al., 2012). The social transmission of weight-related behaviours is a viable explanation for the spread of obesity in friendship networks that has been documented in recent research (Ali, Amialchuk and Heiland, 2011). A better understanding of the role of friendship networks on obesity related behaviours is important in order to learn how to modify these behaviours. Especially that, unlike genetics, obesity related behaviours including diet, physical activity, sedentary behaviour and sleep deprivation are somewhat modifiable.

There are multiple processes to explain the similarity of behaviours in friendship networks. The process of social selection or homophile (the tendency for individuals to select individuals with similar behaviours) and peer influence (influencing the individual to change his behaviour) (Valente, 2010). Several mechanisms may explain the process of peer influence including modelling (engaging in a behaviour after observing a peer), peer pressure (directly imposing a behaviour on a peer), group norms (a collection of attitudes shared by a group of peers) and co participation (engaging in a behaviour with a friend) (Prinstein and Dodge, 2008). Recently, there has

been a growing interest in studying the effects of social networks including friendship networks on obesity and obesity related behaviours by undertaking social network analysis. Social network analysis is the structural approach based on the social ties between individuals (Freeman, 2004). The approach is focused on the patterns and implications of the social ties between the individuals because these ties have important consequences on their behaviour (Wasserman & Faust, 1994). Social network analysis can unveil how relationships enable health behaviours (Shoham et al., 2015).

Although there is consistent evidence that friends are similar in physical activity; evidence on diet and sedentary behaviour is mixed and limited (Ali, Amialchuk and Heiland, 2011; Geller et al., 2013; Sawka et al., 2013). Friendship networks have been linked to obesity related behaviours; however, network characteristics have not been broadly examined (Sawka et al., 2014). Several gaps in current knowledge, include the lack of evidence regarding the association between social network ties, roles, positions, characteristics and diet, physical activity and sedentary behaviour (Sawka et al., 2013). The aim of this review is to synthesize existing literature on associations between friendship networks and obesity related behaviours among the youth by undertaking a systemized review. A systematized review encompasses multiple, but not all aspects of a complete systematic review (Grant and Booth, 2009). The objectives of the review are to: 1) examine association between a friend's obesity related behaviours (diet, physical activity and sedentary behaviour) and the obesity related behaviours (diet, physical activity and sedentary behaviour) of the individual 2) identify different types of social network measures/variables (such as network size, density, position etc) and examine associations between them and obesity related behaviours (diet, physical activity and sedentary behaviour).

2. Method

To identify the relevant studies, the database Scopus was searched. The following search terms were combined for the network effects (social networks, friend, friendship, peer) and for the obesity related behaviours (diet, eating, physical activity, sedentary behaviour, screen time). Searches were restricted to English peer reviewed journal articles. Scopus was searched in August, 2016. There was more than 3,000 articles returned after combining the search terms (each search a network effects search term and an obesity related behaviour search term were used). The screening process was done at three different stages including screening by title,

screening by abstract and finally a full paper review. The first stage assessed the titles of the articles and after removing the duplicates 89 articles were eligible. The 89 remaining articles were then screened by abstract and a total of 25 articles were identified for a full paper review. A full paper review of the remaining 25 articles resulted in 14 relevant articles as shown in Figure 1 below. The criteria for selection was articles published in the last ten years studying the influence of social/friendship networks on obesity related behaviours among youth (below 21).

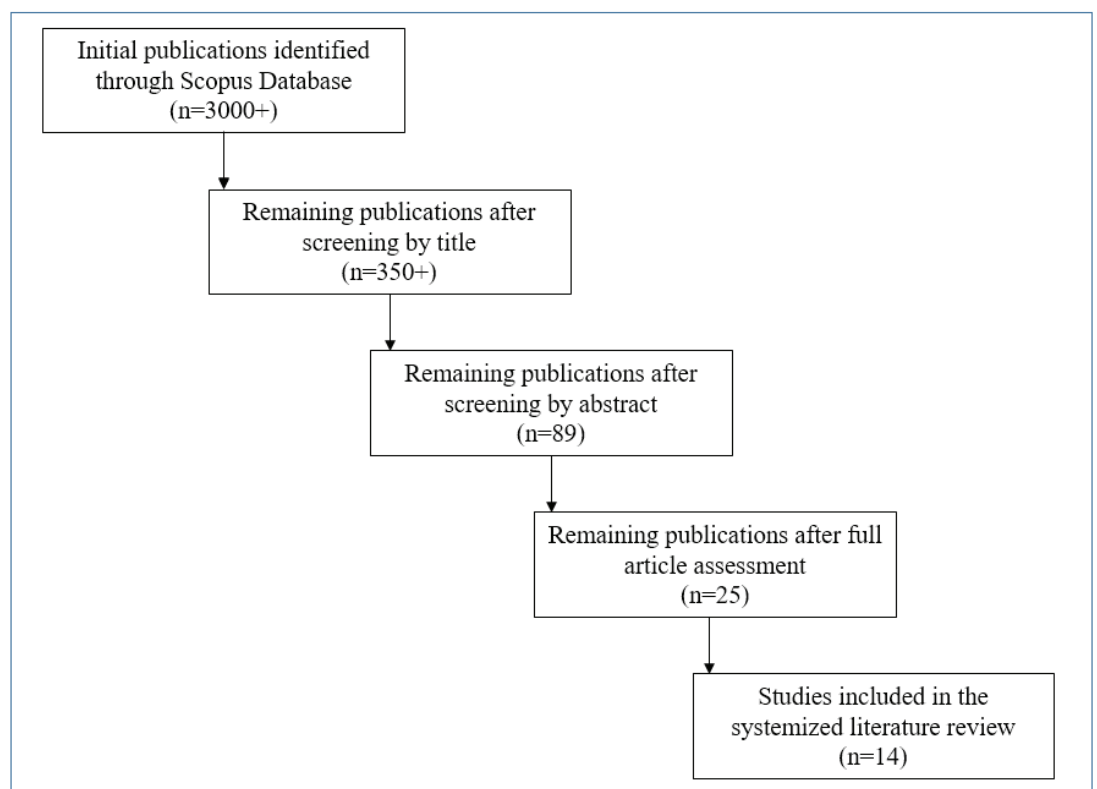


Figure 1: Diagram for article search and selection.

3. Results

A total of fourteen studies were included in this review. A table with a full description of the included studies is available in Appendix A. The below sections will present the findings:

3.1. Characteristics of the reviewed studies

A total of 14 articles met the inclusion criteria. The included studies were interested mainly in adolescents between the ages 12 to 18 (n=12), young adults aged 19 (n=1) and children between the ages 8 to 12 (n=1). The types of studies included literature review studies (n=2), primary data studies (n=9) and secondary data studies (n=3). The majority of the studies employed quantitative methods (n=10), and the remaining studies used mixed methods, employing both quantitative and qualitative instruments (n=2). The geographical locations of the studies were USA (n=6), Australia (n=4), Canada (n=2), United Kingdom (n=1) and Sweden (n=1). The studies followed a cross-sectional study design (n=7) and a longitudinal study design (n=5). The selected studies that use data (both primary and secondary) investigate associations between friends/peers and one or more obesity related behaviour, in addition to associations between one or more obesity related behaviour and one or more network variable as summarized in Table 1 below. Most of the studies investigated associations between friends or peers associations with one or more obesity related behaviour (n=11) as presented in Table 1 below. The majority of the studies investigated physical activity (n=10), followed by diet (n=6) and sedentary behaviour (n=6) as presented in Table 1 below. Some of the studies investigated associations between obesity related behaviours and networks variables including size (n=1), density (n=2), popularity (n=4), centrality (n=1), clique membership (n=2), and proportion of friends engaging in a certain obesity related behaviour (n=2) as presented in Table 1 below.

TABLE 1: Studies investigating associations between friends/peers, obesity related behaviours and network variables.

Publication	Association between friends/peers	Obesity related Behaviour			Network Variable					
		Diet	Physical Activity	Sedentary behaviour	Size	Density	Popularity	Centrality	Clique membership	Proportion of friends
Ali, Amialchuk and Heiland, 2011	✓	✓	✓	✓						
Barclay, Edling and Rydgren, 2013	✓	✓	✓							
de la Haye et al., 2010	✓	✓	✓	✓	✓	✓	✓		✓	
de la Haye et al., 2011	✓		✓							
de la Haye et al., 2013	✓	✓					✓			
Finnerty et al., 2009	✓	✓	✓							
Garcia et al., 2016	✓		✓	✓						
Geller et al., 2013	✓	✓	✓	✓						
Marks et al., 2015	✓		✓	✓						✓
Sawka et al., 2014	✓		✓	✓	✓	✓	✓	✓	✓	✓
Simpkins et al., 2013	✓		✓				✓			

3.2. Associations between friendship networks and diet

There is a significant positive association between individuals' and friends' fast food consumption (Ali, Amialchuk and Heiland, 2011). Friends being similar on food consumption behaviours is a potential mechanism for the social 'contagion' of obesity (de la Haye et al., 2010). Individuals also have a significantly greater probability of eating healthily if a nominated peer also does so (Barclay, Edling and Rydgren, 2013). Additionally, the degree to which this behaviour is shared is positively correlated with the strength of the relationship between the two individuals (Barclay, Edling and Rydgren, 2013). The findings of some of the studies are gender specific which has implications for gender tailored interventions (de la Haye et al., 2010; Finnerty et al., 2009). One important friendship network property is popularity (i.e receiving ties) which was found to be associated with consumption of unhealthy snacks among males which means popular boys were the highest consumers of unhealthy snacks (de la Haye et al., 2010) as shown in Table 2 below. Male friends were also found to be similar in their consumption of high calorie foods (de la Haye et al., 2010). Although adolescent intake of unhealthy foods was predicted by their friends' intake; the changes to adolescents' beliefs about unhealthy foods do not appear to be the underlying mechanism of influence from their friends (de la Haye et al., 2013). There seems to be mixed evidence on peer and friends influences on individuals in the literature. Some researchers found no evidence of peer or friend influence on individuals' dietary habits (Finnerty et al., 2009; Geller et al., 2013). Parents/ guardians had the dominant influence on adolescents' dietary behaviours in comparison to their friends (Geller et al., 2013)

3.3. Associations between friendship networks and physical activity

There is significant positive association between individuals' and friends' sports and exercise (Ali, Amialchuk and Heiland, 2011). Individuals tended to befriend peers who did similar amounts of physical activity and consequently emulated their friends' behaviours: however, friends' influence on physical activity was not found to be mediated through cognitions about physical activity (de la Haye et al., 2011). Friends' physical activity level have a significant influence on individual's physical activity level (Sawka et al., 2013). Higher levels of friends' MVPA (moderate to vigorous physical activity) was associated with higher levels of MVPA among males and females (Garcia et al., 2016). There is a mutually dependent relationship between adolescent friendship networks

and physical activity (de la Haye et al., 2011). Friends become similar in BMI and physical activity over time however physical activity as measured in this study was not found to explain friendship similarity on BMI, but several other potential mechanisms could be further explored (Simpkins et al., 2013). Focus group data revealed that friends positively influenced participants' MVPA through engaging in activities with participants, verbal encouragement, and modelling; the most cited reason for engaging in MVPA with friends was enjoyment (Garcia et al., 2016). Children's physical activity was positively associated with encouragement from friends, friends' own physical activity and engagement with friends in physical activity (Maturro and Cunningham, 2013). Different friendship network characteristics (density; proportion of active friends; betweenness centrality; popularity) appeared to have different consequences on physical activity; the proportion of active close friends was associated with MVPA (Sawka et al., 2014).

Additionally the size of children/adolescents' friendship groups is associated with physical activity (de la Haye et al., 2010) as shown below in table 2.

3.4. Associations between friendship networks and sedentary behaviour

Evidence surrounding friendship influence on individual sedentary behaviour is limited and mixed (Sawka et al., 2013). There is no consistent evidence in support of peer effects on TV viewing (Ali, Amialchuk and Heiland, 2011). One study found female friends to engage in similar screen based behaviours (de la Haye et al., 2010). Another study found that males screen time was associated with higher levels of screen time among their friends (Garcia et al., 2016). Friendship network characteristics were found to be associated with sedentary/screen time in late childhood/early adolescence, however these associations differ by gender (Marks et al., 2015). Different friendship network characteristics (density; proportion of active friends; betweenness centrality; popularity) appeared to have different consequences on sedentary behaviour; network density was associated with sedentary behaviour among boys so boys in dense networks were found to be highly sedentary (Sawka et al., 2014) as shown below in

TABLE 2: Studies that found evidence for associations between friends/peers, network variables and obesity related behaviours.

Obesity Related Behaviour	Association between friends/peers	Network Variable			
		Size	Density	Popularity	Proportion of friends
Diet	(Ali, Amialchuk and Heiland, 2011), (Barclay, Edling and Rydgren, 2013)			(de la haye et al., 2010)	
Physical Activity	(Ali, Amialchuk and Heiland, 2011), (de la Haye et al., 2011), (Garcia et al., 2016), (Sawka et al., 2014)	(de la haye et al., 2010)			(Sawka et al., 2014)
Sedentary Behaviour	(de la haye et al., 2010), (Garcia et al., 2016)		(Sawka et al., 2014)		

4. Discussion

There are strong associations between egos and alter health behaviours for the youth which suggests that health behaviours of an individual's peers plays a role in shaping their own health behaviours (Barclay, Edling and Rydgren, 2013). Higher Body Mass Index (BMI) of close friends is correlated with a higher BMI of the individual (Renna, Grafova and Thakur, 2008). One of the hypothesized causes of the similarities in higher BMI among friends is the similarities in obesity related behaviours including diet, physical activity and sedentary behaviour. Peers and friends are found to have a significant effect on physical activity levels (Finnerty et al., 2009). When it comes to diet, there are mixed findings in the literature on the similarities in diet among friends. Some researchers found similarities in diet among friends (healthy and unhealthy diets) (Ali, Amialchuk and Heiland, 2011; de la Haye et al., 2010; de la Haye et al., 2013; Barclay, Edling and Rydgren, 2013); whereas others found no effect of friends on individuals diet (Finnerty et al., 2009; Geller et al., 2013). Evidence surrounding friendship influence on individual sedentary behaviour is also limited and mixed (Sawka et al., 2013). This offers important implications for the design of health promotion interventions and obesity prevention programmes (Finnerty et al., 2009). Network-based strategies may be effective in supporting individuals to be physically active (de la Haye et al., 2010). Adolescents are more responsive to the body weight of their same gender friends (Renna, Grafova and Thakur, 2008). So there is also a need for gender specific interventions (Finnerty et al., 2009). Friendship network characteristics are associated with some obesity related behaviours, however these associations differ by gender (Marks et al., 2015). Different friendship network characteristics (density; proportion of active friends; betweenness centrality; popularity) appeared to have different consequences on diet,

physical activity and sedentary behaviour. Popularity(receiving ties) was associated with consumption of unhealthy snacks among boys, the proportion of active close friends was associated with higher levels of physical activity among boys and girls, finally network density was associated with sedentary behaviour among boys (de la Haye et al., 2010; Sawka et al., 2014). Friendships networks have been linked to obesity related behaviours; however, network characteristics have not been broadly examined (Sawka et al., 2014).

5. Conclusion

A high caloric diet, low levels of physical activity and increased participation in sedentary behaviour are important behaviours that have contributed to the increased prevalence of obesity (Wang and Lobstein, 2006).The spread of obesity related behaviours is a potential mechanism by which obesity may spread over friendship networks (Ali, Amialchuk and Heiland, 2011). A growing body of literature explored associations between friendship network characteristics, diet physical activity, and sedentary behaviours (de la Haye et al., 2010; Garcia et al., 2016; Geller et al., 2013; Marks et al., 2015; Renna, Grafova and Thakur, 2008; Sawka et al., 2013; Sawka et al., 2014).. Friendship networks have been linked to obesity related behaviours; however, network characteristics have not been extensively examined (Sawka et al., 2014). Also, there is evidence that friends influence the individuals' physical activity levels; the evidence is less clear for diet and sedentary behaviours (de la Haye et al., 2011; Geller et al., 2013; Sawka et al., 2013). More investigative research is necessary to clarify the role of friendship networks on diet and sedentary behaviour. Future studies in different cultural contexts and different clinical samples are required (Tonetti et al., 2014). Future studies should investigate whether friendship networks influence obesity via other pathways (Ali, Amialchuk and Heiland, 2011). Sleep deprivation (an important predictor of obesity) has generally been neglected in the social networks literature (Maume, 2013). Results from this review are informative for designing effective interventions that could utilize the influence of friends to increase physical activity levels among children, adolescents and young adults.

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Appendix A: Summary of selected publications

No.	Publication	Author(s)/Year	Purpose	Approach	Dataset/Age Group/Country	Major Finding(s)	Limitation(s)	Future Research
1	Weight-Related Behaviour among Adolescents: The Role of Peer Effects	Ali, Amialchuk and Heiland, 2011	To investigate whether social interactions in friendship networks influence the following weight-related behaviours of adolescents: exercising regularly, playing an active sport, hours of TV/Video viewing, sleeping six or fewer hours, eating breakfast on weekdays, frequency of eating at fast food restaurants, eating five servings of fruits/vegetables daily, and consuming calorie-dense snacks.	Multivariate regression /Longitudinal	National Longitudinal Survey of Adolescent Health(Add Health) dataset/ Adolescents/ USA	The social transmission of weight-related behaviours is a viable explanation for the spread of obesity in friendship networks that has been documented in recent research. Weight reduction interventions may be complemented with strategies that focus on leveraging peer support to modify behaviours.	The reliance on self-reported behaviours.	Future studies should investigate how friendship ties are formed(for example to examine whether friendship ties are more likely to form between individuals with similar observable traits). Additionally, to examine whether the spread of one behaviour in social networks (e.g. fast-food consumption) might influence the spread of another (e.g. unhealthy snacking). Finally, to look into whether peer influence in obesity operate via other pathways that has not been examined in this study.
2	Peer clustering of exercise and eating behaviours among young adults in Sweden: a cross-sectional study of egocentric network data	Barclay, Edling and Rydgren, 2013	To investigate clustering of exercise and eating behaviours amongst a previously unstudied group, young adults in Sweden(wher obesity rates are less severe). Since previous research has mainly been conducted in the United States and Britain(countries that have relatively high rates of obesity)	Logistic Regression/ Cross-sectional design	Adolescents (19 year olds)/ Sweden	There strong associations between egos and alter health behaviours for young adults, which is consistent with previous research. This suggests that health behaviours of an individual's peers may play a role in shaping their own health behaviours.		There is a need to develop a greater understanding of the mechanisms by which obesity is spread through a social network. Future research will go beyond documenting correlations between peers and to investigate the diffusion of actual health behaviours.

No.	Publication	Author(s)/Year	Purpose	Approach	Dataset/Age Group/Country	Major Finding(s)	Limitation(s)	Future Research
3	Obesity-related behaviours in adolescent friendship networks	de la Haye et al., 2010	To examine obesity-related behaviours within adolescent friendship networks, since adolescent peers have been identified as being important determinants of different health behaviours.	ERGM selection models Cross sectional design	Male and female students from independent middle schools/Adolescents/Australia	Friends are found similar on some leisure activities and food consumption behaviours (as early as 13–14 years old) which is a potential mechanism for the social 'contagion' of overweight and obesity. Same-sex friends were found to be similar in organized physical activity in two out of three schools. Female friends were found to engage in similar screen-based behaviours, and male friends tended to be similar in their consumption of high-calorie foods. Finally, popularity (receiving ties) was associated with some behaviours, however these effects were gender specific and differed across networks.	The data is cross sectional which makes it difficult to assess the causal effect of the hypotheses.	It is important to consider contextual factors in the future such as school policies or facilities that impact on food consumption and physical activity and how they mediate social influence in a school setting.
4	How physical activity shapes, and is shaped by, adolescent friendships	de la Haye et al., 2011	To explore the role of school-based friendship networks in adolescents' engagement in physical activity	Stochastic actor-based models/ Longitudinal	Two cohorts of grade eight students/Adolescents/Australia	Participants tended to befriend peers who did similar amounts of physical activity, and as a result consequently emulated their friends' behaviour. However, friends' influence on physical activity was not found to be mediated through cognitions about physical activity. The findings show that there is a mutually dependent relationship between adolescent friendship networks and physical activity. This indicates how network-based strategies may be effective in supporting adolescents to be physically active.	Study addressed school based friendships and ignored other friendships, parent influences and siblings influences.	Future studies should be longer in duration to study the lasting effect of friendship. Additionally the use of objective measures such as accelerometers should be used instead of self reported measures on physical activity.

No.	Publication	Author(s)/ Year	Purpose	Approach	Dataset/Age Group/ Country	Major Finding(s)	Limitation(s)	Future Research
5	Adolescents' Intake of Junk Food: Processes and Mechanisms Driving Consumption Among Friends	de la Haye et al., 2013	To test whether observed similarities in low-nutrient energy-dense(LNED) food intake among friends result from social influence and to explore the underlying psychological mechanisms.	Longitudinal social network models	Three waves of grade eight students/ Adolescents/ Australia	Adolescent intake was predicted by their friends' intake and changes to adolescents' beliefs about LNED food do not appear to be the underlying mechanism of influence from their friends.	The reliance on self-reported measures.	Future work should investigate whether or not friends influence LNED food intake among a more diverse sample of youth(not just grade eight students). Additionally, to investigate whether these effects persist outside of the school setting or have a lasting effect on dietary behaviours.
6	Effects of peer influence on dietary intake and physical activity in school-children	Finnerty et al., 2009	To investigate the dietary intake and physical activity of boys and girls aged 9–13 years, and the influence of peers on these behaviours.	Non-parametric data analyses/ Cross-sectional study	Nine primary and secondary schools/ Adolescents & Children /United Kingdom	Low energy intake and physical activity levels but high saturated fat intakes are found among boys and girls across all age groups which highlights the importance of promoting both physical activity and healthy food choices. Peers are found to have a significant effect on physical activity levels but not on dietary intake which offers an important approach for the design of health promotion interventions and obesity prevention programmes and a need for gender specific interventions because of a new finding on boys and girls mean daily step counts being closer to their gender specific cut-off.	The cross sectional design in addition to the risk of measurement bias which results from self-report measures..	Future studies should undertake longitudinal research in order to design more effective interventions to promote healthy lifestyle behaviours in school children.

No.	Publication	Author(s)/Year	Purpose	Approach	Dataset/Age Group/Country	Major Finding(s)	Limitation(s)	Future Research
7	The influence of friends and psychosocial factors on physical activity and screen time behaviour in adolescents: a mixed-methods analysis	Garcia et al., 2016	To determine the association between adolescent moderate-to-vigorous physical activity (MVPA) and screen time with their friends' behaviours and to explore potential mechanisms of friends' social influences on MVPA and screen time.	Quantitative (Multiple Regression Analysis) and Qualitative approach (Focus Group)/ Cross-sectional	High school and middle school students/ Adolescents/ USA	Regression data showed that higher levels of friends' MVPA was associated with higher levels of MVPA in both males and females. While higher levels of friends' screen time was associated with higher levels of screen time in males while psychosocial variables, such as increased screen time enjoyment, were associated with increased screen time in females. School level was not associated with either MVPA or screen time. Focus group data revealed that friends positively influenced participants' MVPA through engaging in activity with participants, verbal encouragement, and modelling. In general participants preferred to be active with friends rather than alone, however, females preferred activity with a close friend while males preferred to be active with a group. The most cited reason for engaging in MVPA with friends was enjoyment. The majority of participants reported friends not having an influence on screen time and adolescents with active friends are more likely to be physically active and spend less time engaging in screen-based behaviours. Parents and siblings were mentioned by both high school and middle school males and females as having influence on their physical activity and screen time behaviours.		Future studies should investigate family influences and peer influences (not just friends) on physical activity and sedentary behaviour.

No.	Publication	Author(s)/ Year	Purpose	Approach	Dataset/Age Group/ Country	Major Finding(s)	Limitation(s)	Future Research
8	Parent and friend influences on the multiple health behaviour of Pacific Islander adolescents	Geller et al., 2013	To describe the influence of parent and friends on the dietary, physical activity, and sedentary behaviours of Pacific Islander high school students.	Quantitative (Descriptive Analysis) and Qualitative approach (Focus Group/ Cross-sectional)	High school students/ Adolescents/ Hawaii, USA	Findings revealed parents/guardians as the dominant influence on adolescents' dietary behaviours, and time spent with parents was almost exclusively sedentary. In comparison, adolescents were more active with friends, but shared less healthy dietary habits. Results provide groundwork for similar examinations and culturally tailored interventions among similar adolescent populations.	Reliance on self reported data. The inability to generalize the findings since the sample was from a private school.	
9	Friendship Network Characteristics Are Associated with Physical Activity and Sedentary Behaviour in Early Adolescence	Marks et al., 2015	To report on associations between personal network characteristics, physical activity (PA), sedentary and screen- related behaviours for early adolescents.	Regression Models/Cross sectional design	Students(11-13 years old) from fifteen randomly selected Victorian primary schools/ Adolescents/ Australia	Friendship network characteristics are associated with physical activity and sedentary/screen time in late childhood/early adolescence, however these associations differ by sex. The positive influence of active peers may be a promising avenue to strengthen traditional interventions for the promotion of PA and THE reduction in screen time.	The reliance on self-reported measures.The low participation rate did not permit analysis of complete network characteristics such as in-degree, density or reciprocity. Finally the inability to determine underlying mechanisms (e.g. social influence or selection) which lead to observed network-behaviour associations, due to the cross- sectional design	

No.	Publication	Author(s)/Year	Purpose	Approach	Dataset/Age Group/Country	Major Finding(s)	Limitation(s)	Future Research
10	Influence of Friends on Children's Physical Activity:A Review	Maturo and Cunningham, 2013	To examine evidence for friendship influences on children's physical activity through systematic searches of online databases	Systematic Literature Review		Children's physical activity was positively associated with encouragement from friends, friends' own physical activity and engagement with friends in physical activity. These findings are consistent with friends influencing physical activity, but most of the studies did not distinguish influence from other factors that could explain similarity. Promotion programs should consider physical activity with friendships in health..		More research is needed to understand the magnitude of influences and to explore the potential for using friendship to promote healthy physical activity habits.
11	The effect of friends on adolescent body weight	Renna, Grafova and Thakur, 2008	To examine the influence of peers on adolescent weight.	Instrumental Variable Analysis/ Longitudinal	The National Longitudinal Study of Adolescent Health (Add Health dataset)/ Adolescents/ USA	Higher Body Mass Index (BMI) of close friends is correlated with a higher BMI of the respondent adolescent among women and adolescents are more responsive to the body weight of their same gender friends.		
12	Friendship networks and physical activity and sedentary behaviour among youth: a systematized review	Sawka et al., 2013	To summarize existing evidence on friendship networks and both physical activity and sedentary behaviour among children and adolescents.	Systematic Literature Review		Friends' physical activity level have a significant influence on individual's physical activity level. Evidence surrounding sedentary behaviour is limited and mixed. Results from this review could inform effective public health interventions that harness the influence of friends to increase physical activity levels among children and adolescents.		Future studies should describe the theoretical frameworks/models informing their methodologies and the interpretation of results. Only three studies mentioned the use of a theoretical framework/model. .

No.	Publication	Author(s)/Year	Purpose	Approach	Dataset/Age Group/Country	Major Finding(s)	Limitation(s)	Future Research
13	Associations between Aspects of Friendship Networks, Physical Activity, and Sedentary Behaviour among Adolescents	Sawka et al., 2014	To broadly examine adolescent friendships network characteristics, physical activity levels and sedentary behaviour.	Cross sectional analysis	Adolescents (11–15 years)/ Canada	Different friendship network characteristics (density; proportion of active/sedentary friends; betweenness centrality; popularity; clique membership) appeared to have different consequences. The proportion of active close friends was associated with MVPA, on the other hand network density was associated with sedentary behaviour.		
14	Adolescent Friendships, BMI, and Physical Activity: Untangling Selection and Influence Through Longitudinal Social Network Analysis	Simpkins et al., 2013	To examine the association between adolescents' friends and health.	Stochastic actor-based (SAB) model referred to Adolescent Health (Add Health dataset)/ Adolescents/ USA	The National Longitudinal Study of Adolescent Health (Add Health dataset)/ Adolescents/ USA	Friends become similar in BMI and physical activity over time. However the specific mechanisms by which this happens are not clear. Physical activity as measured in this study was not found to explain friendship similarity on BMI, but several other potential mechanisms could be further explored.	Data limitations (Self-reported weight and height, Objective measures of physical activity, such as accelerometers, or even daily diaries would be better than the measures by the Add health data). More detailed indicators are on health related behaviours required	

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Conference Paper

Enterprise Risk Management (ERM): Assessment of Environmental and Social Risks from ERM Perspective

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Literature Review

1. Introduction

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In this chapter, the study seeks to review academic literature to understand the evolution of ERM, the organisational dynamics of ERM, the program quality, determinants and value relevance, the approaches and focus of professional groups that formulated the frameworks and how corporate social responsibility can improve the risk management processes. The researcher also deemed it appropriate to include the write-ups of proponents of various ERM frameworks as part of academic literature on the subject, as it would help to examine the contents of the major frameworks and the perspective of their proponents; by review of their respective executive summaries and relevant academic papers that have offered comments on the viability or otherwise of the frameworks.

2. Evolution of ERM

In the early days, there was no major academic work in the field of risk and risk management. The earliest known reference to risk management was said to have appeared in 1956 in an article by Russel Caltgar in the Harvard Business Review magazine.

According to Lupton (1999), in the past, the term risk was used broadly in lieu of hazards, threats or harm. This definition indicates a pre-disposition of risk as a negative outcome of a threat or hazard. To date, this view persists in our day to day understanding of risk in common parlance as well as in the context of business, where business risk is defined as the unpredictable variability or volatility of returns, including potential for worse than expected returns.

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According to Watson and Head (1998) the development of probability calculations in the insurance business during industrial revolution impacted upon ideas of risk management. Economists developed this idea of uncertainty to deal with situations where probability was not available (Reddy, 1996).

According to Robert D. Irwin, Irwin Mehr & Bob Atkinson Hedges were said to have published a landmark book to address the subject of business risk management in 1963, entitled 'Risk Management in the business enterprise'. They are rightly referred to as the 'fathers of risk management'. They explained how effective risk management could maximise efficiency and result in greater productivity in an enterprise. They were also of the view that as far as possible all business risks should be managed in a comprehensive manner and not simply insured. They remarked that if only hazards are to be insured, insurance brokers should call themselves hazard risk managers!

Thus the modernist view of risk incorporates both positive and negative outcome of events. This contrasts with the pre modern era where risks were solely considered to be bad.

3. Evaluation of ERM Frameworks

The ERM frameworks that are currently in vogue, such as COSO, COCO, Turnbull, RIMS and CAS, ISO 31000, seek to cover all types of risks in a comprehensive manner – irrespective of the industry or region. However, the existence of these ERM frameworks contribute to an overall uncertainty regarding the essential components of ERM. According to Sara A. Lundqvist (2015), this uncertainty carries forward to empirical studies of ERM implementation. By using inconsistent indicators and measures of ERM implementation, it is impossible to compare "apples with apples" and arrive at convincing and conclusive results regarding ability of ERM to create value.

She adds that as the attention towards ERM implementation increases, the number of frameworks emerged which contribute to the overall uncertainty regarding the essential components of ERM. Each framework identifies its own specific component structure indifferent components in varying number and definition; while the underlying ideas regarding ERM remain consistent, dissatisfaction with existing guidance on ERM implementation is apparent. Many of the dimensions and underlying ideas

She cites empirical studies of ERM by Beasley, Branson and Hancock (2010) who find that that the COSO framework, the most cited and debated framework is ambiguous and overly theoretical in nature. Existing frameworks tend to be conceptually similar,

but they differ in structural representations, pertaining to how dimensions and aspects of ERM are grouped and how they define the integral parts of ERM.

3.1. Shortcomings of COSO framework

When ISO started to gain traction and better acceptability, defenders of COSO stated that ISO31000 is nothing but COSO wrapped in a new format. Norman Marks a practitioner and thought leader on Internal Audit, RM and corporate governance, author of several books on RM, including “Governance, RM, and audit”, sought the opinion of Grant Purdy, who chaired the initial committee that drafted the AS/NZ standard and has also been on the advisory committee that came out with ISO 31000. Purdy elaborated why he did not like COSO Framework, as under:

Grant believes that the COSO product has a number of good points but that overall he finds it complex and unwieldy, and can clearly see how many companies would just give up and pay someone to tell them how to implement risk management. He also thinks the cube and the need to keep some alignment going with the Internal Control Framework diagram compromises the flow of the processes given there.

Olson and Wu Ac (2008) claim that that there were over 80 RM standards across the globe, research has consistently identified coco ERM as the best known and most widely diffused RM standard.

However, Grant notes there are some big technical flaws that will mean the process being followed will always be deficient and inefficient.

1. “When identifying events, the code mentions external factors; but the majority of the discussion is focused on internal factors, systems, culture etc. The COSO process starts with the internal environment, not the external ones and this fails to reflect the influence that the business environment, regulatory conditions, and external stakeholders have on the risks an organisation faces, its organizational culture, and how they influence its risk appetite and risk treatment priorities. This can easily lead to organisations just focussing inwardly and not actively identifying risks that reflect external factors and circumstances.”
2. “Stakeholders, particularly external ones, are not mentioned and stakeholders’ objectives and their influence on decisions about the significance of levels and types of risk are omitted. This is a critical omission and means the organisation effectively insulates itself from external opinion and stakeholder objectives. Most

of the risks we face are caused by an incompatibility between stakeholders' and our own objectives.”

3. “COSO ERM says that risks are described as events, and events are described and illustrated by examples of sudden, acute occurrences. There is no appreciation of the slow changes in circumstance and situation (for example a deterioration in internal culture or market sentiment) that give rise to some of the most critical risks.”
4. “COSO measures risk in terms of the probability of an event and its “typical” consequences. However, we will not always get the “typical” consequences every time an event occurs. For example, not every time my house is hit by lightning will it burn down. If I estimate the level of risk as the product of the likelihood of the event (being hit by lightning) and the worst consequences (losing my house), I will overestimate it. In fact, there are multiple possibilities: my house could be hit and not be damaged; it could be hit with slight damage; and so on all the way up to being burned down. Each potential consequence would have a different likelihood of occurring.

“Of course, this all sounds rather academic until you actually observe how, in workshops and in life, people who follow the COSO code use a rating system to estimate the level of risk; and they always seem to get it wrong and omit the conditional probabilities that should be applied to the event probability. This means that they always overestimate the level of risk, which prevents individual risks being properly distinguished and compromises any realistic modelling of the effectiveness of controls. The COSO approach to estimating the level of risk reduced the credibility and usefulness of the risk management process because significant consequences are predicted to occur much more frequently than is credible based on historical experience.”

1. “Throughout the document, the term ‘risk likelihood’ is used, but risk does not, *per se*, have a likelihood. Likelihood is one of the attributes used to measure the level of risk. This is a philosophical trap that can lead the unwary to see a risk as an event and then to use language such as “when the risk occurs”. Risks don’t occur when events occur, risks only ‘exist’ whenever we make objectives. If there are no objectives, then there are no risks. The level of risk (not risk) is described in terms of what can occur (consequences) and how likely they are.”
2. “While there are some concessions to what are called ‘opportunities’, in COSO ERM risks are mostly about losses and risk treatment (response) is about reducing

the likelihood and severity of losses. The thinking in the COSO document is not mature enough to appreciate and explain that risk is just the effect of uncertainty in what you set out to achieve and that outcomes can be beneficial, detrimental or both. Certainly, the document does not promote taking risks that have beneficial consequences because you are confident you can treat or tolerate any potential downsides which is, after all, the basis of enterprise: the undertaking of risk for return.”

3. “I find the whole thinking about ‘risk responses’, ‘control activities’ and ‘monitoring’ most confusing and confused and I think most people who read and try to use the code do as well. For example, if you institute an audit regime, this is a good form of risk treatment to reduce the likelihood of unfavourable consequences. However, audit could be required as a matter of policy, could be part of a management process, and could also be part of a monitoring strategy. ISO 31000 clears this all up. Risk treatment refers to the actions you take that lead to the creation of and improvement in controls, and controls are what you employ to modify risk. These controls then require monitoring and review by assurance processes. That’s it.”
4. “The problems with the concept of inherent risk are well-known and the COSO document does not explain why you need to use this artificial, theoretical state where no controls exist, to justify tolerating the present level of risk or doing something more to modify it. In risk analysis it is useful to understand what worse-case consequences could occur if existing controls fail so that we can focus our assurance activities on checking those controls, but this is best dealt with by using the Potential Exposure (inherent consequences) value that does not require any consideration of likelihood.”
5. “The whole area of risk appetite and what COSO ERM calls risk tolerance is handled in a mechanistic and naive way. The thought that before you even do a risk assessment, a board can identify the material risks and tell you how much they are prepared to tolerate puts them on a par with the Gods. What this means in practice is that some Boards may have the ability to think about different types of consequences (not risks) and in some cases they can say how much loss they are prepared to sustain over a period of time compared with the balance sheet and cash flow of the company. However, these are not measures of risk, they are only measures of consequence. For non-monetary consequences, the statements that Boards can make start to get very vague. For example, they might say they

never want to kill someone, but they will rarely want to agree on what individual risk of fatality they are prepared to expose their employees to such risk.

6. Lastly, the COSO document confuses and mixes the framework together with its organisational structures, with the processes used for RM, particularly for risk assessment, treatment and monitoring. Framework operates at the organisational level, whereas the process which the framework seeks to integrate operates at the level in the organisation where decisions are made for every business activity

3.2. Disparity in ERM frameworks

Researchers in several disciplines have shown that organisations often respond to introduction of new strategies and ideas by loose coupling or even de coupling. ERM introduction was no different Researchers are now concerned that ERM practices are now implemented on a superficial level merely to 'window dress' to meet corporate governance and/or regulatory requirements and appease stakeholders (Power 2009, Soin and Collier 2013). Accordingly, to them, with box ticking approach to RM, there is a real danger that ERM would fail to make the expected impact on business empirical studies focussing on the link between ERM implementation and firm value are so far inclusive, leaving the value proposition of ERM uncertain (Lundqvist, 2015).

According to Giovanni, Quarchioni, and Ricabonni (2005), control of risk information flow and organisation culture can explain a risk managers influence on the organisation by engaging in sense-giving efforts ERM function as a sense-givers vertically and horizontally influence meaning construction among decision makers in an organisation. Two processes of influence used over time triggers a change in the ERM function's influence on decision making. In one process, ERM function attempts to vertically influence top management's decision regarding acceptance of RM technologies. Second process, ERM function attempts to horizontally influence decision makers to use RM in decision processes.

(Sense-giving is an interpretative process in which actors attempt to influence each other, and is used by organ leaders, stakeholders and middle managers (Martin and Lawrence, 2007).

AS far as COSO is concerned, as a practice RM and its associated accoutrements of risk frameworks, executive positions, committees and information systems, have been increasingly embraced by organisations across the globe. (Power 2013).

According to Scarborough (2002), there are professional groups of actors – comprising accountants, auditees, academics, researchers and consultants able to perform multiple roles and support the construction and diffusion* of COSO's ERM.

*(*diffusion refers to the process by which an innovation is communicated through certain channels over time among the members of the social system (Rogers 1995).*

According to Spira and Page (2003), changes in technology and auditing encouraged devolution of control downwards and rigidly enforced compliance with policies and procedures was replaced BY THE RHETORIC OF RISK. As it became increasingly believed that risk could be measured and managed, demand for new and meaningful frameworks intensified.

Oliviero (2001) pointed in a number of failings including the absence of implementation guidance and clear allocations of responsibility, as well as, the imperative of enterprise wide approach.

Because of the clout and sheer number of the members of organisations comprising the COSO (AICPA – 386,000, FEI – 15,000, IIA – 180,000 members, IMA 65,000 members, AAA -8,500) spread around the globe, and PwC as the author of the COSO ERM report, COSO became a standard. The background, expertise and reputation of the bodies caused people to look at it as the place to go for gaining insight and direction on how to build an ERM architecture in their organisations (Rick Steinburg).

As an author, PwC did not have the formal responsibility beyond writing the framework; however, they also helped to develop and promote the framework after its launch by continuing to support it publicly and by developing aligned corporate tools. Mark martens recognised the applied use of the framework.to develop a range of commercial products. PwC flew in and met executives from several countries to market and implement and apply COSO and develop a methodology for how they could go to market COSO.

Together, PwC and other Big-4 from the professional accounting industry generally supported the COSO adoption and implementation. Meanwhile risk management consultants also jumped in the fray by complementing of COSO with other proprietary frameworks, branded them as their own. This highlights the interpretive viability of COSO (Benders and Van Veen, 2001). According to (Protiviti, 2006, 2007), parallel to the accounting community, consultancy community too served to embed the framework through a diverse range of services to compete for the consulting dollars. The presence of a hybridised consulting group meant that the policing and deterring forms of institutional works were not required to keep the pre-eminent status of COSO.

The role played by COSO in disruption, the devolution of internal control led to inadequacies and failures of internal control systems in a way that the COSO model was problematized as insufficient to deal with a growing array of risks. A majority of studies investigating the diffusion of RM tools suggest that the individuals responsible for creating the practice tend to be different from the individuals who promoted and distributed COSO. (Ax and Bjornenak, 2005)

4. ERM – Developing Capability Through Prioritising Risks

The challenge in RM is the existence of unlimited amount of risk a firm faces and the limited ability to foresee these risks. Further it is neither feasible nor economical to address all potential risks (Bromily and Rau, 2016). Management needs to identify and focus on potential threats with the greatest impact on the firm and applying a resource based view to focus on such risks.

A lot of RM theories and practice focus on ex ante identification of risks, such as compliance and due diligence. Nevertheless, there will always be circumstances where firms cannot foresee all risks, especially a large number of low probability-high impact ones. This makes ex ante management of each such event not feasible (Bromily and Rau). According to them, under such circumstances, by applying a dynamic capability ERM, and providing managers with appropriate tools, the firm can recover from the impact of such strategic and operational risks more easily

Several studies have advocated that ERM implementation improves firm's performance, like the study by Hoyt and Liebenberg (2011), investigate the relationship between ERM adoption and a firm's performance. He used the firm's value as a dependent variable and used Tobin's Q to measure it.

Benefits of ERM implementation: ERM implementation has several tangible and intangible advantages (Lai and Azizan, 2010). Organizations should implement ERM to improve decision making, efficient gathering of information, and strengthen corporate governance. Findings from different studies have stated that risk management is the process through which the organization can minimize earning volatility, encourage job and financial security and improve the value of their shareholders. Overall, risk management is a process that enables firms to grow economically and financially as it reduces the risk of business activities and cost of capital.

Uncertainty relating to ERM carries forward to empirical studies of ERM undertaken by Beasley, Clune and Harmanson (2005a and 2005b), Beasley Pagach and Warr,(2008), Desender (2007), Gates, Nicolas and Walker (2009), MC Shane, Nair and Rustambekov

(2009), where results regarding value creation and its determinants are unclear and inconclusive. Consequently, there exists no real consensus about what an effective ERM framework looks like and/or what are the principal components of such a framework.

5. Corporate Social Responsibility (CSR)

When the term ERM is mentioned, the tendency is to focus on operational, business and financial risks only. In today's economy, there are other risks that are gaining centre stage, namely, Environmental risks (ER) and Social risks (SR). This has led to the emergence of Corporate Social Responsibility (CSR) and the aspect of corporate citizenship.

According to Greg De Persio, many good companies, like individuals, believe in abiding by a set of ethical principles to guide their business operations. They appreciated that good business ethics kept them within the parameters of the law, as well built goodwill and brand equity.

Investopedia traces the evolution of CSR - In the 1960s, due to fierce competition, companies were driven by the pressure to perform and generate profits. Cultural values were shifting, with individualism and dedication to social issues such as environmentalism and world peace coming into vogue. Young workers, who were idealistic and wanted to make the world a better place looked upon their employers with disdain. Managements saw this as a possible threat to the employer- employee relationship. Professional companies responded by establishing mission statements and codes of conduct and embracing social responsibility. 1960s saw companies trumpet environmental friendliness and found ways to give back to their communities.

In 1970s and 1980s, companies revamped their HR strategies to focus less on compliance with employment contracts and more on values – management philosophy shifted from pure authoritarianism to more of collaboration and working on equal footing.

1990s saw a further thrust to environmentalism and graver legal ramification for ethical missteps. Class action suits rose as tobacco and junk food manufacturers faced heightened scrutiny. Oil and chemical companies had to contend with public pressure.

In the 2000s, business ethics entered the online internet realms. In an era of unprecedented public and consumer advocacy, scrutiny and activism through internet, businesses were under pressure to demonstrate that their entities stood for something more than profits.

CSR involved incurring costs, diversion of staff and management focus. Several large corporates saw a way to circumvent this trend by attempting to take advantage of globalisation by strengthening their supply chain for cost benefits –

Use of cheap labour, including availing of services of sweat shops and child labour.

Indiscriminate mining, logging, deforestation of rain forests and over fishing, poor disposal of waste, etc led to corporate profits at the cost of permanent damage to eco-systems through oil spills, climate change, etc.

News of oil spills and harm to environment and to vulnerable communities, such as indigenous groups in the amazon region that have been wiped out to make room for oil and gas drilling and hydro power generation, made headlines in the media.

When this information entered the public information domain, some areas of corporate culture began to embrace a philosophy that balanced pursuits of profit with a commitment to ethical conduct. Some companies saw the adverse impact such environment and social risks could have not only on the image and bottom line of their companies, but threaten the very sustainability of their companies. In order to account for the importance of the social and ecological considerations in doing business, these organisations advocate the concept of triple bottom line – social, environmental and economic – or people, planet, profit.

CSR involves incurring short term costs that do not provide immediate financial benefit to the company, but instead promotes positive social and environment change. According to Abigail Mc Williams, there is a considerable debate on and research efforts into the question of whether improving corporate sustainability performance is not only beneficial for social and environmental well -being, but also for the financial well -being of the company.

6. Improving ERM through CSR

According to Kytte and Ruggie (2005), CSR is morally discretionary rather than morally obligatory. They indicate that CSR is related to ERM in 2 ways – one, by providing intelligence about what those risks are and two, by offering effective means to respond to them. In both cases, it leads to effectively managing stakeholder relationships by addressing environment protection, human resources management, work health and safety, local community relations and customer/supplier relationships.

Paul c. GODFREY of Brigham University contends that:

1. corporate philanthropy and CSR generates positive moral capital among communities and stakeholders;
2. moral capital can provide shareholders with insurance like protection for many of the firm's intangible assets.
3. such insurance protection contributes to shareholders wealth.

According to him, the above assertions constitute a pathway that leads CSR to CFP (corporate financial performance). He adds that whereas CSR activity anchors one end of the pathway, shareholders' wealth the other.

Wood and Logsdon, 2002, state that the voluntary and discretionary nature of CSR activity (i.e. doing the ethically right deeds above and beyond the explicit transactional interests of the firm) should create shareholder wealth.

According to Post and Waddock (1995) debates the question as to how can a firm further its strategic goal of creating wealth through profits by expending resources with nothing tangible in return. They argue that CSR activity can generate positive moral capital when the organisation and its actors receive positive evaluations from affected communities. Positive moral capital can protect a firm's relationship based intangible assets as it works to mitigate negative assessments.

Rindova and Fombrun (1998) claim that reputation in itself has no cash value, but reputational capital arising as an outcome of CSR has economic value because it disposes stakeholders to hold beliefs or engage in actions that potentially create wealth for shareholders. A global reputation of a firm is a function of reputational assessments of various attributes of the firm, including the moral dimension of a firm's performance. This moral dimension is represented by positive moral capital. Paul Godfrey avers that positive moral capital acts as an insurance, since it protects relational wealth. By creating economic value through influencing stakeholders perception regarding relational wealth. Many of a firm's resources are relation based, because the earning potential of these assets depends upon the relationships a firm has with its stakeholders – such as: employees' loyalty through affection and attachment to the organisation, communities through socially constructed system of norms, values and beliefs,

1. vendor trust, based on the expectation that the entity will perform;
2. Brand value with customer – loyalty based on the expectation that the entity will deliver irrespective of the oversight or ability to monitor;

This has led to the emergence of "Stakeholder Theory", championed by REFreeman through various books and articles in 'business ethics journal'.

7. Stakeholder Theory

In an article “new approaches to CSR”, R.E.Freeman and R. Velamuni introduced the concept and application of “stakeholder theory”.

Stakeholder theory affirms that those whose lives are touched by a corporation hold a right and obligation to participate in directing it. The theory describes those individuals and groups who will be affected by or will have an impact on the company’s actions.

It asks:

“What are these entities legitimate claims on the business?”

“What rights do they have with respect to the company’s actions?”

“What kind of responsibilities and obligations can they justifiably impose on a particular business?”

As a simple example, when a petrochemical plant emits pollutants in the air or water, a CSR perspective would accord the onus directly on the plant owners to take measures to control the pollution. By contrast, a stakeholder theorist begins with those living in the surrounding community whose environment might be poisoned and begins to talk about business ethics by insisting that the surrounding community has a right to clean air and water. Hence, the community members, who become stakeholders in the company and their voices must contribute to corporate decisions. It’s true that they may own no stock, but they have a moral claim to being involved in the decision-making process. This is a very important point. At least in theoretical form, those affected by a company’s actions actually become something like shareholders and owners. Because they’re touched by a company’s actions, they have a right to participate in managing it.

Who are the stakeholders surrounding companies? If the enterprise produces chemicals for industrial use and is located near a village or town, the stakeholders would include:

1. Company owners, whether a private individual or shareholders
2. Company workers
3. Customers and potential customers of the company
4. Suppliers and potential suppliers to the company
5. Everyone living in the town who may be affected by contamination from workplace operations
6. Creditors whose money or loaned goods are mixed into the company’s actions

7. Government entities involved in regulation and taxation
8. Local businesses that cater to company employees (restaurants where workers have lunch, grocery stores where employee families shop, and similar)
9. Other companies in the same line of work competing for market share
10. Other companies that may find themselves subjected to new and potentially burdensome regulations because of contamination at that one Massachusetts plant

The first five on the list—shareholders, workers, customers, suppliers, and community—may be cited as the five cardinal stakeholders.

Once a discrete set of stakeholders surrounding an enterprise has been located, stakeholder ethics may begin. According to this theory, an entity's objective should be to maximize profit on a collective bottom line, with profit defined not as money but as human welfare. The collective bottom line is the total effect of a company's actions on all stakeholders.

Company managements are primarily charged not with representing the interests of shareholders (the owners of the company) but with the more social task of coordinating the interests of all stakeholders, balancing them in the case of conflict, and maximizing the sum of benefits over the medium and long term.

It requires engaging with other stakeholders about their interests: they ask for input from local environmentalists about how pollution could be limited, they seek advice from consumers about how product safety could be improved, and so on. At every turn, stakeholders are treated (to some extent) like shareholders, as people whose interests need to be served and whose voices have real power.

Transparency is an important value for those promoting stakeholder ethics. The reasoning is simple: if you're going to let every stakeholder actively participate in a corporation's decision making, then those stakeholders need to have a good idea about what's going on.

What's certain is that stakeholder theory obligates corporate directors to appeal to all sides and balance everyone's interests and welfare in the name of maximizing benefits across the spectrum of those whose lives are touched by the business.

Jacob Hörisch, R. Edward Freeman, Stefan Schaltegger (2014) identify three challenges of managing stakeholder relationships for sustainability:

1. Strengthening the particular sustainability interests of stakeholders,

2. Creating mutual sustainability interests based on these particular interest,
3. Empowering stakeholders to act as intermediaries for nature and sustainable development.

To address these challenges three interrelated mechanisms are suggested: education, regulation, and sustainability-based value creation for stakeholders.

8. Importance of Communication in RM

When RM universe is considered in its entirety, the aspect of communication can be broken into 3 distinct areas:

1. Top down: Board /Top management downwards to business units and operating staff;
2. Down up: From operating level to top management & Board;
3. Board to stakeholders

There is a lot of clarity in the first two areas, as far as ERM frameworks are concerned. E.g. When one looks at the COSO cube, the front facet that has 8 components. The first component, Internal Environment pertains to governance, structure, culture and philosophy of RM. Blakely, 2009, Drew and Kendrick 2005, Kirkpatrick 2008, Stulz 2008, all emphasise the importance of establishing, communicating and understanding the firm's structure, culture and philosophy of RM and risk appetite. So, the tone needs to be set at the top and communicated down the ranks. The second component, objective setting covers the strategic objectives of the firm's operations, reporting and compliance activities. This too has to be communicated from the top management / Board down to the ranks.

The eighth component of COSO, namely monitoring, deals with the manner in which communication should exist throughout the organisation to ensure that each of the other components are linked and functioning properly, that there are no material weaknesses; if any risks exist, to ensure that these are within the risk appetite; if not, to bring them to the fore to the top management Board.

One must appreciate that introducing an ERM framework within an entity is to accord a benefit to the shareholder through the ability to create value. However, there no guidance in the major ERM frameworks for communicating to the stakeholders, the nature and extent of risk faced by their entity and how and whether these are appropriately managed. Further, there are no regulatory requirements in this regard.

Philip M Linsley and Philip J Shrives (2005) mentioned in their article in the British Accounting Review that American Accounting Association (AAA) and Financial Accounting Standards Board (FASB) lamented that UK companies were providing insufficient risk information within their annual reports. The Institute of Chartered Accountants of England and Wales (ICAEW) noted the risk information gap and issued discussion documents encouraging UK company directors to report on risks in greater depth. Securities and Exchange Commission (SEC) Financial Reporting Release (FRR) has also sought disclosures on specific financial risks, such as derivative exposure.

According to Linsley and Shrives (2005), the major obstacle to increased risk disclosures is the reluctance of directors to release information on operational, project and financial risks they deem too commercially sensitive and to provide forward looking risk information without safe harbour protection.

However, the same argument does not hold good with respect to reporting for CSR, to demonstrate how the entity is dealing with environment and social risks. According to Donald Siegel, for decades, the perception has been that the sole responsibility is to maximise returns to shareholders and very often adopted business models that have been harmful to certain communities and resources. Now organisations aim to mitigate or reverse this damage, by embracing a philosophy that balances the pursuits of profit with a commitment to ethical values. They are demonstrating that the same money and influence allows them to effect positive change, thereby enhance their sustainability levels. This sustainability level becomes a source of competitive advantage.

Investors and shareholders tend to look upon companies which embrace CSR with a high degree of respect. Hence companies are eager to report on the manner they have tackled environment and social risks. Chris Murphy enumerates reasons why companies are increasing reporting on ER and SR:

1. Company's brand image is bolstered when the public perceives a positive image when it projects itself as financially profitable and socially conscious;
2. Customer engagement – companies engaged in CSR can impact the buying decisions of customers. Some customers are willing to pay more for a product if they know that a portion of the profit is going to worthy cause.
3. Retain top talent – employees of CSR want to feel that they are part of something bigger. Social responsibility empowers employees to leverage corporate resources at their disposal to do well. Being part of a strategy that helps the greater good can boost employee morale and lead to greater productivity among the workforce.

4. Competitive edge – companies involved in CSR for community benefit stand out from the competition.

Chris Murphy also dwells on the subject of Socially Responsible investment (SRI). SRI investment theme excludes investments in companies that produce addictive/harmful substances like tobacco, alcohol or companies that run casinos. They seek out companies engaged in social justice, environment sustainability, clean technology, etc.

This demonstrates that mitigating ER and SR through CSR lends financial benefits to organisations.

There is yet another aspect in corporate reporting. Atkins (2006) claims that what the investing public understands by social responsibility is transparency in firm's financial reporting. Firms that implement CSR to meet expectations of stakeholders are more likely to provide investors with transparent and financial information. According to Paul Godfrey, transparency means that the firm discloses its activity and results as they occur, thus allowing stake holders to create a stock of positive moral capital. This transparency facilitates moral capital formation in advance of need; for when the firm needs positive moral capital, it may be too late to build it. Another way to look at it is that it creates a kind of risk management mechanism.

Talking of competitive advantages, according to (Barney, 1991), physical resources can be easily acquired by competitors, whereas tacit or team based socially complex intangible assets, such as reputation, are less easily replicable. According to Russo and Fouts (1997), intangible reputation based assets are becoming more important contributors to firm performance and such resources are more likely to be valuable and inimitable when society demands a cleaner environment; improving the firm's reputation creates goodwill and a positive effect on market value. Graves and Waddock (1997) believe that risk-averse institutional investors are likely to respond positively to improving social performance.

Paul G. Godfrey discusses the aspect of reporting through the principle of transparency and recommends that firms should publicly disclose details of their CSR portfolio. Shareholders and community members need to be informed of CSR activities, the level of funding, the goals and rationale that underpins these decisions. Accordingly, transparency facilitates moral capital formation in advance of need. e.g. Target Stores stabilise funding at 5 % of profits, which provides evidence to its commitment to CSR is genuine, not opportunistic,

Firms with higher CSR may be characterised as having improved relationship with primary [employees, customers, suppliers, etc] and secondary [local communities and legislative branches] In modern capitalistic society, managerial actions in the best interests of shareholders require fair treatment and support to all stakeholders –(Berman, Wicks, Kotha, Jones, 1999). CSR includes environment assessment, which allows firms to anticipate stakeholder concern. By addressing these actions proactively, firms can be in a position to decrease the variability of business returns – i.e. risks.

Alexander and Buchholz (1978) explain their hypothesis through an association between CSR and financial risk. Market reactions to CSR investments, will be more immediate and stronger than internal accounting return fluctuations. In other words, market investors will have a DIRECT response to CSR than accounting measures of capital use. Reasons: corporations with more stable stakeholder group relations probably encounter fewer difficulties in attracting new equity investments. Conversely, low investment in CSR may be interpreted as lack of managerial skills, because the firm has not acquired a progressive reputation. As a corollary to this argument, CSR needs to be visible to have an effect on financial risk. Without visibility of CSR, stakeholders cannot use CSR as an informal signal of a firm's successful attempts at satisfying stakeholder groups. (Fombrun and Stanley,1990).

CSR policies of a firm can also have a positive effect on its HR in terms of retention of workforce and attracting new recruits.(Turban and Greening, 1997) point out that environmental policies are probably much less visible to investors and consumers, than are other CSR actions. That explains why the latter is often a more integral part of a firm's PR efforts by featuring on their websites frequented by job seekers.

Marc Orlitzky and John D.Benjamin (2001) concludes that the higher the firm's corporate social performance, the lower the financial risk incurred by the firm. Hence, being a good corporate citizen tends to reduce firm risk. Investment in CSP appears to lower external market risk relatively more than internal accounting –based risk.

Institutional theory sees CSR as the consequence of political process whereby NGOs, states and other stakeholders put pressure on firms to adopt given social practices and apply social and economic penalties to non-adopters.

According to Nicola Misani, (in his article titled "Convergence of CSR practices" in Management Research Review, vol. 33, 2010) mentions that high profile accidents damage the reputation of the entire industry, and players can find themselves tarred with the same brush.one of the ways to avoid this is to privatise reputation. Socially responsible firms may try to distance themselves from the rest of the pack by cultivating uniqueness by allying themselves with reputed stakeholders or forming elite clubs

with above average performers. Alternatively, they need to impress upon other firms in the industry to improve their performance standards, through benchmarking and information sharing. This will help laggards to adopt best social practices.

Nicola adds that private regulation on socially responsible behaviour can prevent socially responsible firms being put at a financial disadvantage, because the regulation forces all firms to adopt the same practice and sustain costs at the same level. The result is that a CSR convergence emerges which is socially motivated.

The aftermath of the Bangla Desh Apparel industry tragedy vividly explains this phenomenon. Bangla Desh was the world's second largest manufacturer and exporter of apparel and garments. Because of the international buyers' pressure to lower their cost and speed up deliveries, they paid low wages and factories had abysmally low standards of safety and worker welfare. Fire and collapse of Rana plaza group of factories in Dacca, killed 1134 workers and injured several thousand others. Judy Gearhart of ILRF (International Labour Rights Forum) spearheaded the movement to build a coalition similar to the one that occurred in the Triangle Shirtwaist Factory in N. York over a 100 years ago. She encouraged major buyers from B Desh factories to sign an accord "Fire and Bldg safety and workers' standards in B Desh". Those who signed the accord and created a AFL _CIO fund for improvement in apparel factory bldg. standards in terms of installation of fire rated doors and enclosed stairwells. H & M led this movement and prompted other famous names such as GAP, WALMART, JC PENNY, and over 100 other buyers joined the effort to ensure that the factories from whom they buy their goods adhere and uphold highest standards of labour and safety practices.

Kim Bhasin reported that Ralph Lauren (RL) refused to sign this accord even as they continued to buy from B Desh factories. When this issue was raised at the RL Annual Shareholders Meeting, RL responded that "participating in such an accord would be an unnecessary and potential diversion of corporate resources, with no commensurate benefit to shareholders". At that moment, NY City Pension Fund, who held \$23 million of RL stock, threatened to sell their stake. RL relented and have now joined the accord, signalling a clear case of convergence of CSR.

Researchers have looked extensively at the CSR risk relationship. Fombrun and Stanley, 1990, provided a very good meta analytical review of literature on CSR-firm risk and found support for a negative relationship. Bowman (1980) mentions CSR as a means for reducing business risk. According to him, firms with proactive csr engage in proactive assessment of environment and social risk management tend to develop a culture to anticipate and reduce potential sources of business risks, such as changes

in govt. regulations, growing labour unrest or environment damage. This has resulted in the development of 'real option' theory and CSR is a kind of real option.

McWilliams and Siegel (2001) argued that an analyses of the costs and benefits of CSR using traditional financial NPV (net present value) technics of valuation, would often lead to decision to forego such investments. As a result, economists have traditionally expressed scepticism about CSR, because of its failure to contribute to the goal of maximising shareholder value. Unfortunately, NPV approach fails to take into account, the value of strategic flexibility that certain investments create.

Johnson and Johnson (JNJ) illustrates how proactive CSR can create the option to call upon the support of stakeholders in times of crisis. In 1982, when the crisis of Tylenol poisoning occurred, JNJ undertook the option to recall the entire inventory at a cost exceeding \$100 million. When a technical solution to the problem was found and it was determined that the product could be marketed safely, it was re-introduced in 1992 and by 1993, it regained its market share. This was due to the fact that JNJ generated the trust among customers by the company's quick reaction provided by their strategic csr option flexibility. In recent times, automobile companies have realised the vauue of this option when they undertake mass recall of vehicles when a serious flaw is detected that could jeopardise the environment and or safety of passengers

Compare this to the Exxon Valdez incident when the oil tanker struck a reef and the resultant oil spill resulted in huge damage to the marine environment. The cause was due to the fact that the third mate, who took over from an intoxicated skipper was not licenced to steer had to take over. Exxon had down sized their workforce, eliminated the emergency response crew and officers like the third mate were routinely required to take responsibility. Hence the spill could not be contained. Exxon saved the cost of CSR option but lost the flexibility to respond and consequently, lost more than \$8 billion in clean-up, penalties, liability and risk to reputation.

Byran W Husted (2005) concludes that currently, methods of measurement of value of risk needs to take into account avoidable costs, hedonic pricing, contingency costs, etc – in short cost of ER and CSR. Hence, the real option logic of CSR provides a sharper focus on relation of risk to CSR.

The perspective of CSR as a real option has an implication for risk management as, it brings downside risk into focus, especially ex ante risk, which is the perception of risk before the event takes place (Mcgrath, 1999).

9. Research Questions

Based on the foregoing, the researcher intends to address the following research questions:

- Is the company's environmental and social risk management and performance communicated to stakeholders through the company's official disclosures and reports?
- By reviewing the archival and current data to facilitate a comprehensive study of the company's risk management system, is the company's adopted ERM framework e.g. ISO31000 or COSO, being effectively utilised in the management of environmental and social risks?

10. Conclusion

In order to gain a better understanding of risk and risk management the research focussed on literature relating to popular ERM frameworks to ascertain their respective key attributes to determine the key factors and gaps that have hindered their successful implementation.

Accordingly, a wide range of academic papers and literature were reviewed along with the executive summaries and write-ups by the promoters of different ERM frameworks. A large part of the literature described the key components of ERM and the disparity between frameworks which are cause of lack of a common understanding and uniform approach towards ERM implementation. As a result, the research leads to a conclusion that any two identical firms implementing two different frameworks, would look totally dissimilar and the risk inventory of these two firms would be different. This would make comparison and benchmarking impossible.

Secondly, most of the literature and the guidelines issued for various frameworks are descriptive rather than prescriptive in nature. For example, most literature emphasises the fact that risk need not carry a negative connotation; that when risk management is undertaken, both hazards and opportunities should be given due regard. But very little or no literature exists to demonstrate the methodology of risk management of opportunities. Again. There is a lot of mention regarding, setting of risk appetite and risk tolerance criteria, there are no professional guidelines or literature on the subject. This leaves a very important component of RM to the hunches and gut feelings.

ERM implementation is a complex and costly exercise, which can drain an entity of a lot of its monetary and human resources. In the absence of adequate literature on the subject to measure benefits of RM and an empirical evidence of the value added by

RM, Boards and top management do not have any means to verify whether the cost is commensurate with the benefits. Accordingly, in places like UK, RM is undertaken more out of compliance requirement rather than for adding value for its stakeholders.

All said and done, the whole rationale of ERM implementation for an entity is to give stakeholders a sense of risk exposure and sustainability. None of the ERM frameworks contains a detailed guideline or guidance for communicating risks to the stakeholders. Also, there is no academic research that covers this aspect of communication. Yes, in UK and some other countries, the code on corporate governance does make it mandatory for Boards to report on various topics, including risk. But in actual practice it is done very superficially, which has prompted ICAEW and American Accounting Association to lament that the risk reporting needs to be done. There is no research paper that provides the guidelines for a balance between a detailed report on risk that scares ordinary shareholders and key indicators on risk for comfort.

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Conference Paper

Effect of Social Media in B2b Marketing: Invertigation of Ewom Effect in Oil and Gas Sector in Qatar

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Abstract

The radical growth of the internet is a factor affecting different sectors of the business environment, including changes in the marketing sector. The importance of social media communications in the marketing environment cannot go unnoticed. An important element of social media communication greatly influencing marketing is electronic word of mouth (eWOM) - involving consumer to consumer communication about products and brands- which influences consumer purchase decisions. Nevertheless, research on the importance of eWOM in the marketing of oil and gas is limited. The purpose of this research is to investigate the effects of social media in business to business (B2B) marketing through an investigation of electronic word of mouth (eWOM) in the oil and gas sector in Qatar. Possible solutions to the negative effects of eWOM will also be determined.

Keywords: Social Media, eWOM, Oil and Gas, B2B.

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1. Background of Marketing and Communication

The definition and understanding of marketing has evolved over time. In broadening the understanding of marketing, Kotler (1972) defines marketing in terms of value creation and transaction leading to achievement of the desired goal for the parties involved. A more recent definition of marketing is provided by Baines, Fill, and Page (2013), who define marketing as both an activity and a process of management. The intention of marketing involves meeting the needs of consumers and value creation while at the same time attaining the goals of the organisation. Therefore, marketing is carried out by an organisation with the intention of achieving their set goals while meeting the needs of consumers. It is also important to consider the value that an organisation seeks to create for their consumers in their marketing processes and activities when defining marketing (Baines, Fill, & Page, 2013; Kotler & Armstrong, 2010).

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Traditional marketing strategies involved the use of traditional means of communication to pass information about products and brands from marketers to consumers. According to Killian and McManus (2015), these methods gave marketers and business firms the upper hand in deciding the information that reached consumers. The practices used in marketing involved the use of formal methods that were impersonal and unidirectional, which limited the capacity of consumers to influence product development or provide feedback to firms (Armstrong et al., 2015; Moran, Muzellec, & Nolan, 2014).

The traditional communication means are undergoing revolutionary changes, which are not only affecting communication but also influencing marketing (Leite & Azevedo, 2017; Stone & Woodcock, 2014). Leeflang et al. (2014) argue that the internet is the main factor fuelling changes in the marketing sector. The use of the internet is instrumental in shifting control of information from the hands of the marketer and the firm to the hands of the consumer. According to Mulhern (2009), digitalization plays an important role in enhancing consumer communication while expanding the speed at which consumers and marketers can transmit information about products to other users. As a result, marketing efforts are changing to include and invest more in digital technologies and digital marketing than before. The table below presents an illustration of the use and penetration of the most used social media platforms in the United States.

TABLE 1: Social media use in the United States.

Social media platform	Frequency of use per day	Individuals with access (percent)
Twitter	5	22
Facebook	8	63
Google plus	2	17
Instagram	6	27
Facebook messenger	3	47
Source: Chaffey (2016)		

An important factor changing the marketing environment is the use of social media. The use of social media to communicate is increasing leading to rapid changes in transferring information from one user to another (Miller, 2013; Tuten & Solomon, 2017). According to Ashley and Tuten (2015) and Miller (2013), using social media can be beneficial to both the consumer and the marketer. Killian and McManus (2015) add that marketers can use social media to expand communication with consumers through enhancing feedback from these consumers about their products, which can be used to enhance customer experience. One of the ways through which social media significantly influence marketing is the use of word of mouth (Chu & Kim, 2011; Killian & McManus,

2015; Sweeney, Soutar, & Mazzarol, 2014). With the internet, word of mouth has evolved to include the use of electronic platforms to communicate, leading to the emergence of electronic word of mouth eWOM.

Electronic word of mouth involves communication between consumers through the use of digital technologies, which in marketing includes the transmission of information on products and brands (Alboqami et al., 2015; Breazeale, 2009; Cheung & Lee, 2012; Doh & Hwang, 2009). Litvin, Goldsmith, and Pan (2008) add that eWOM is an informal communication between consumers, which involves advice and information about the features of a product and their personal experiences with these products. The information and advice received through eWOM communications is used by consumers to make purchase decisions (Park & Kim, 2008; You, Vadakkepatt, & Joshi, 2015). Therefore, the importance of eWOM in marketing cannot be overlooked or overemphasised. Marketers and firms are challenged by the use of electronic social communication by consumers, which denies them the power to control the information that reaches consumers. This often puts marketers in the defensive position with threats to customer loyalty (Cheung & Thadani, 2012; Sotiriadis & Van Zyl, 2013).

Several factors have been established to influence the use of electronic word of mouth by consumers. According to Goldsmith (2008), the two main social communication features of eWOM are information and advice. Consumers in eWOM seek for information pertaining to particular products and brands from other consumers. In addition, consumers with experience with different products can help other consumers by providing advice to them on the features of products. This kind of advice highlights the positive and negative characteristics of products, which is intended to either encourage or discourage other consumers from making purchases (Hung & Li, 2007; Park & Kim, 2008; Phelps et al., 2004).

The effects of eWOM on different measures of marketing have been established by several authors in different business areas (Park & Kim, 2008; Torlak et al., 2014; Yoo, Kim, & Sanders, 2015). A study by Park and Kim (2008) sought to establish the association between eWOM and knowledge processing among consumers. Their results indicate that consumers with more expertise with reviews from other consumers were significantly affected by eWOM. The information they received was instrumental in affecting their decision to purchase a given product. A different study by Cheung and Thadani (2012) assessed the effects of eWOM on consumers and found that electronic word of mouth was essential in affecting the attitudes of consumers towards products and brands. As a result of the effect on consumer attitude, eWOM affected their intentions to purchase a product. These studies and other research have been

instrumental in illustrating the important impact of eWOM in changing the intentions of consumers to purchase products from different firms (Baber et al., 2016; Chen et al., 2015; Fan et al., 2013; Sotiriadis & Van Zyl, 2013).

An important aspect that has been investigated- and is essential for marketers- is how eWOM affects a brand and the components of branding. Torlak et al. (2014) argue that communication between consumers is a factor that significantly influences consumer factors that are related to marketing a brand. Specifically, eWOM affects brand image leading to an eventual effect on the intentions of consumers to purchase a specific brand (Kim, Sung, & Kang, 2014; Pauwels, Aksehirli, & Lackman, 2016). In agreement to these findings, the results of a study by Severi, Ling, and Nasermodeli (2014) indicate a correlation between eWOM and measures of brand equity, including brand loyalty, brand awareness, brand image, brand association, and quality perceptions. In summary, electronic word of mouth can positively or negatively affect brand perceptions of consumers leading to an effect on their association with that particular brand (Beneke et al., 2015; Eisingerich et al., 2015; Kietzmann & Canhoto, 2013; Lin, Wu, & Chen, 2013).

A different relationship important to this study is the influence of eWOM on sales and revenues. Babić Rosario et al., (2016) investigated how eWOM affects the sales of a company. Their results indicate a positive association between positive eWOM and sales for a company. These findings are supported by results from other studies, which relate sales to eWOM (Baek et al., 2014; Lu, Ye, & Law, 2014). The spread of positive sentiments about a product or service using electronic communication platforms can enhance the sales of a company leading to increases in their revenues. On the other hand, negative eWOM can reduce sales and revenues for a company unless redemptive measures are put in place to rectify the problem created (Kim, Lim, & Brymer, 2015; Marchand, Hennig-Thurau, & Wiertz, 2017; Tang et al., 2016).

The discussion above highlights the importance of eWOM in marketing. It also details previous research on the effects of eWOM on different aspects of a business. However, the findings discussed are based on studies carried out in sectors that are not the oil and gas industry. Therefore, it is imperative to explore how previous researchers have investigated eWOM in the oil and gas industry, as well as Qatar in general. An interesting finding is that there is a limitation in the number of studies that have explored electronic word of mouth in the oil and gas industry, and particularly in the context of Qatar. Studies that have explored the oil and gas industry have considered social media in general and have not been specific in eWOM. In addition, these studies have explored crisis management and public relations from the perspective of the company and not from the

consumer's perspective (e.g. Chewning, 2015; Choi, 2012; Harlow, Brantley, & Harlow, 2011; Maresh & Williams, 2010; Muralidharan, Dillistone, & Shin, 2011).

The study by Harlow, Brantley, and Harlow (2011) highlight the Deepwater Horizon oil spill, which led to public condemnation of British Petroleum Company. The author argues that the use of social media by BP was not significant in the management of the crisis as expected by the company. On the other hand, Muralidharan, Dillistone, and Shin (2011) used content analysis to assess the use of social media in the BP oil spill crisis and how it worked in repairing its image. Their conclusions suggest that the use of social media by the company were not effective in maintaining or elevating the company's image. Consequently, these studies postulate that social media use might not be an important tool in crisis management in the context of oil and gas companies.

Despite inadequacies in previous research in examining social media use and eWOM effects in the oil and gas industry, other researchers have been effective in establishing eWOM in other sectors. For instance, several researchers have determined the positive and negative results of eWOM in the tourism and hospitality sectors (Bronner & De Hoog, 2011; Cantallops & Salvi, 2014; Jalilvand & Samiei, 2012b; Jalilvand et al., 2012; Jeong & Jang, 2011; Ladhari & Michaud, 2015). Researchers have also explored eWOM in the finance and education sectors in details (Alexandra, 2015; Bataineh, 2015; Yang & Mutum, 2015). These researches increase the need for further research in other sectors to determine whether eWOM has the same effects in these sectors and the possible solutions to these effects- when the effects are negative.

1.1. eWOM and its effect in B2B marketing

Many individuals around the world are increasing the amount of time they spend in the cyberspace searching for information and connecting with friends and acquaintances among others. The social media such as microblogging sites, video sharing sites, and social networking sites, undeniably, have altered the manner in which individuals around the world undertake their routine activities. eWOM, as part of social media, has attained increased academic and managerial attention among researchers who have sought to investigate its various effects in different contexts – hence demonstrating eWOM's significance in business (Cheung & Lee, 2012; Lee, Noh, & Kim, 2013; Thoumrungrroje, 2014; Zhang, Craciun, & Shin, 2010).

Cheung and Lee (2012) investigated the motives behind consumers' use of eWOM and found three drivers namely sense of belonging, reputability, and delight in assisting other consumers. Chu and Kim (2011) sought to find out the factors determining consumers'

use of eWOM and found that trust, social capital, and vulnerability to interpersonal influence determined eWOMs use. An investigation on product reviews posted by consumers online also revealed both negative and positive biases with regard to reviews made on products related to promotion consumption goals (Zhang, Craciun, & Shin, 2010). Various aspects of brand, in relation to eWOM, such as brand image and brand equity have also received much attention in research. Jalilvand and Samiei (2012a) investigated the eWOMs impacts on purchase intention as well as brand image and found that eWOM has significant impacts on brand image and further possesses direct effects on purchase intention in the Iranian automobile business. In addition, the same latter study finds that eWOM indirectly facilitates consumers' intention to procure goods and services. A study conducted by Severi, Ling and Nasermodeli (2014) on the mediatory role of eWOM on brand equity dimensions such as brand association, loyalty, and awareness among others in Malaysia found that eWOM significantly affects perceived quality of products, and brand image. Brand image also mediated the relationship between perceived quality and eWOM.

Significant amount of research have been undertaken on eWOM in different sectors such as education, finance, and tourism. An investigation into eWOMs potential in influencing consumer behaviour in the tourism sector demonstrates that much can be revealed about tourist consumer behaviour in the modern setting (Harris & Prideaux, 2017). In addition, eWOM provides both archived and real-time data about tourists. Moreover, through eWOM, rising significance in electronic proximity is emphasised (Harris & Prideaux, 2017). While reviewing the effects of eWOM in tourism and hospitality, Litvin, Goldsmith, and Pan (2017) found eWOM as a key influence in the hospitality and tourism sectors and will remain to play a vital role in marketing in the same sectors. Sotiriadis and van Zyl (2013), while examining the influencers of consumer behaviour among the tourists, found three critical factors impacting tourists' decision-making in relation to eWOM use, and they include reliability, expertise, and extent of involvement in the social media platform used. In the education sector, various eWOM studies have focused on students' purchase decisions and academic achievement among others. Themba and Mulala (2013) sought to investigate social media brand-associated eWOM and its impacts on decisions to procure goods and services among Botswana students. The study revealed that opinion and brand-related eWOM contributed significantly to students' decision to procure goods and services. In addition, engagement in the latter was also found to be relatively low. Moreover, eWOM was depicted as a credible source of information pertaining to brands and products. An investigation into the role played by eWOM communication in facilitating connections and further enhancing

student academic standings revealed that eWOM communication positively impacted students' motivation to accomplish tasks through the enhancement of self-efficacy (Vivekananthamoorthy, Naganathan, & Rajkumar, 2016).

Various studies have, further, focused on the impacts of social media on the oil and gas industry. Yin, Feng, and Wang (2015) investigated the social media communication impacts on an oil spill by a multinational firm and found that the negative online exchanges made by consumers contributed significantly to the firm's productivity. Rauschnabel, Kammerlander, and Ivens (2016) also found that negative communications facilitated on the online platform by consumers can lead to adverse effects on the firm's sales and customer attraction. Moreover, Ye (2014) also found the same results through his study of the Facebook impacts on a British oil company oil spill. The negative online feedback resulted in reduced revenues and stock prices for the gas company (Ye, 2014). Omar, Dahalan, and Yusoff (2016) study of social media impacts on knowledge sharing behaviour in a Malaysian oil and gas company found that social media advanced knowledge sharing behaviour in the organisation.

In as much as eWOM has attained significant attention in research in different sectors and contexts, limited exploration of eWOM in the gas and oil industry is evident. Moreover, research that focus on eWOM in Qatar's oil and gas industry are limited – if not lacking. The current study, therefore, seeks to fill in the gap generated through the limited research conducted in Qatar and in the oil and gas industry. The current study will, hence, investigate the effects of social media in B2B Marketing. Emphasis shall be placed on examining the effects of electronic world of mouth on Qatar's oil and gas industry. The study will also provide the possible solutions for mitigating the negative impacts of eWOM in Qatar's oil and gas industry.

2. Purpose of the Research

The purpose of the current research is to investigate the effects of social media in business to business (B2B) marketing through an investigation of electronic word of mouth (eWOM) in the oil and gas sector in Qatar.

2.1. Objectives of the Research

1. To determine the positive effects of electronic word of mouth in the oil and gas industry in Qatar.

2. To find out the negative effects of negative electronic word of mouth in the oil and gas industry in Qatar.
3. To establish the possible solution to the negative effects of electronic word of mouth in the oil and gas industry in Qatar.

2.2. Research Questions

1. What are the positive impacts of electronic word of mouth on B2B marketing in the oil and gas industry in Qatar?
2. What negative effects does negative electronic word of mouth have on B2B marketing in the oil and gas industry in Qatar?
3. How can the negative effects of negative electronic word of mouth on B2B marketing in the oil and gas industry in Qatar be solved?
4. How could ewom effect the relationship between Qatar Petroleum and it is Joint Ventures?

3. Literature Review

Marketing has traditionally involved the use of strategies that are impersonal, formal, and one-sided. These strategies have included advertisements, promotions, and publicity campaigns that have been developed to inform the consumer about the product of a given organisation. Currently, advances in technology and communication have led to the evolution of marketing efforts to include consumers as active participants. As a result, social media and platforms have become important elements in marketing the products and services of firms, organisations, and industries. An important element of social media marketing is the use of electronic word of mouth (eWOM) to communicate issue pertaining to a given product. Electronic word of mouth involves two-way communication between consumers and can influence the purchasing decisions of the client. This review of literature aims at presenting an understanding of social media marketing and its advantages. More importantly, the review discusses previous research on electronic word of mouth, its benefits, and its disadvantages for a business. A deeper analysis of the effects of electronic word of mouth in the oil and gas industry in Qatar and worldwide is presented. Finally, recommended solutions to the negative effects of eWOM on the oil and gas industry are discussed based on previous literature.

3.1. Social Media

The term social media is a combination of two words. The term social refers to devoted to, pertaining to or characterized by the friendly relationship or companionship (Kietzmann et al., 2011; Mangold & Faulds, 2009). Media, on the other hand, refers to an avenue of communication such as the television, magazines, newspapers, and radios among others that reach individuals widely (Kietzmann et al., 2011; Reuben, 2008). Social media can, therefore, be a social instrument for facilitating communication (Correa, Hinsley, & De Zuniga, 2010). In addition, it can be an internet platform used for discussing and sharing information among individuals (Kaplan, & Haenlein, 2010). Social media provides an avenue for networking in a manner that promotes trust among communities and parties involved. Any platform, therefore, that allows the users to share their opinions, contents, views, and further facilitates interactions can be categorized as social media (Leonardi, Huysman, & Steinfield, 2013). Many quotas have confused social media with other related terms such as social news, social networking, wikis, and web 2.0 among others (Correa, Hinsley, & De Zuniga, 2010; Mangold & Faulds, 2009).

Social media exists in various forms (Xiang & Gretzel, 2010). Microblogging is a type of social media, content-based in nature, that limits the characters any user can publish or type in each entry. The most popular network for microblogging is the Twitter. It is also ranked as the fourth worldwide in traffic volume. The user profile for Twitter users is between 21 and 35 years and incorporates users who are highly interested in new technologies (Ramos, 2013).

Social news sites are also part of social media platform that enables any user, registered on the site, to vote for and send articles or news. The most popular social news sites encompass Technorati, Digg, and Reddit. Articles or news that are mostly voted for may appear on the website's homepage and can further generate a large volume of traffic to the original source (Ramos, 2013).

Users can save web links through the social bookmarking sites. The latter type of social media platform organizes the same web links by categories or tags. The most popular bookmarking sites include StumbleUpon and Delicious (Ramos, 2013). Xiang and Gretzel (2010) posit that some social networks are also considered to be mainstream as opposed to others. A social network allows for virtual interaction as well as private and public communications between individuals. They also facilitate both content and information sharing between people. Some of the mainstream social media include Facebook, Google+, and Twitter (Ramos, 2013).

Professional network is also another category of social media platforms that facilitate both professional and business networking. The most popular social networks under the professional network category encompass LinkedIn, Xing, Viadeo, and Yammer (Ramos, 2013). Multimedia social networks are also another category of social media that permits users to create and share visual contents such as video, photos, and audios. The major potential in the latter contents is the viral nature of the shared content (Ramos, 2013).

3.2. Social Media Marketing

According to Saravanakumar and SuganthaLakshmi (2012), social media is a platform for pursuing marketing over the internet to attain branding and social marketing communication goals. Social media marketing mainly encompasses activities that focus on sharing videos, contents, and images for marketing purpose. It is, therefore, a simple way in which businesses reach out to customers. In simple terms, social media marketing can be referred to as the utilization of social media avenues and channels to facilitate product promotion (Safko, 2010). Social media marketing is, therefore, a type of marketing that can be categorised under online marketing activities, which compete with the traditional web-centred strategies for promotion such as the online advertisement campaign and email newsletters (Heymann-Reder, 2012; Kaur, 2016; Saravanakumar & SuganthaLakshmi, 2012).

3.3. Strategic opportunity and social media marketing

Consumers have become more sophisticated and have adopted new techniques and tactics for undertaking searches, choosing, and evaluating their purchase action for services and goods (Heymann-Reder, 2012). Research has revealed new trends among customers entrenched on the use of social media. For instance, the demand for tailored products and customers' willingness to be actively involved in the product development process are increasing. Furthermore, clients' interest in presenting their say at different stages of the business process is increasing (Safko, 2010).

Such revelations impact the manner in which marketers operate and adopt marketing practices on tactical and strategic levels, hence, exposing the same marketers to different challenges and choices (Winer, 2009). Marketers, therefore, adopt the idea of providing consumers with the products and services that are customized in line with their desires and wishes. In addition, the same marketers become open to the idea of co-creation with customers. In this case, the marketers develop conditions that

permit co-operation with consumers in the development and testing of new products (Safko, 2010). Moreover, many businesses have embarked on heavy investment in the social media due to the increased competitive pressure and the acknowledgement by marketers that they need to acquire some control over the consumer-controlled social media space (Heymann-Reder, 2012; Kaplan & Haenlein, 2010).

3.4. Benefits of social media marketing

Various social media marketing merits have been brought forward through research and they take into consideration the different areas of easing business. First, social media marketing benefits businesses since its cost consequences are favourable. The financial barriers associated with the same online marketing type are low when compared with other forms of marketing. Most of the social media platforms are free to access and business entities can post information they find relevant to their customers and can increase traffic to their business enterprises (Hensel & Deis, 2010; Saravanakumar & SuganthaLakshmi, 2012).

Second, one of the most apparent features of any new media is its ability to create and increase new platforms for social interaction. Social interactions allow individuals to engage in chatting, sending emails, and creating social networks among others. Evidence from market research reveals that social media is used for establishing relationships with customers, identify new opportunities in business, and creating communities with the aim of advancing their brand. Social media marketing will, therefore, provide a platform where marketers can collect feedback and relevant information from perceived customers in a manner that facilitates interaction and relationship development (Kaplan & Haenlein, 2010; Sashi, 2012).

Third, social media marketing facilitates interactivity, which in this case refers to user engagement with the messages, machines, and other users. In a social networking context on an online platform, interactivity is one of the vital features of any new media technology. Interactivity increases access to information and further supports improved user engagement and control with social media content (Hensel & Deis, 2010; Heymann-Reder, 2012).

Fourth, social media provides an avenue for marketers to target consumers and audiences while focusing on their personal interests. Advertisements will, therefore, be channelled to customers based on their likings. Fifth, innovation and technological progress have changed the nature of social networks. Specifically, there is a significant departure from traditional social networks. More complex computer-mediated networks

have been established on the online platform and further encompass a greater degree of heterogeneity. Problems associated with geographical location and time have, therefore, become less important with the emergence and use of the computer-mediated social networks (Heymann-Reder, 2012; Saravanakumar & SuganthaLakshmi, 2012).

3.5. Disadvantages of social media marketing

Social media being an interactive process entails exchange between two parties. Such exchange between parties requires time commitment. Since focus on social media marketing has been changing over time and is channelled towards advancing long-term relationship, a significant time investment is apparent, which businesses may not be willing to undertake. Businesses that market their products on social media utilize their trademarks to enhance the authenticity of the same product. Copyright issues in most cases may arise when businesses promote their products and brands or when they use their trademarks through third-party outlets. Marketers, therefore, regularly engage in a continuous process of monitoring the use of their copyrights and trademarks (Kaur, 2016).

The receipt of negative feedback from the clients also poses a significant demerit of social media marketing. The same platform provides the customers with an avenue to present their views about the quality of the product and service as well as the image of the companies. In the event that a company receives negative feedback from its clients, the same company will be subjected to intense market pressure, which may work towards elevating its competitors. Social media, therefore, keeps the image of companies at stake in their day to day dealings with clients (Nadaraja & Yazdanifard, 2013).

Furthermore, being a new technology, B2B firms may find social media marketing unattractive. Previous research has found barriers, both external and internal, to the acceptance of new technologies by B2B firms (Järvinen et al., 2012; Keinänen & Kuivalainen, 2015; Leek & Christodoulides, 2011). A significant portion of firms have been found to be slow in new technology adoption because of perceived barriers such as negative perceptions about social media usefulness, lack of funds and time resource to facilitate training, and unfamiliarity with a specific technology. The adoption of any social media technology will, therefore, depend on the perception of the firm with regard to the specific technology in question (Okazaki & Taylor, 2013). In addition, the adoption of social media marketing is also dependent on the personal innovativeness of the chief executive officer of the firm as well as the level of innovativeness of the specific

organisation. Studies have also suggested that the size of a firm significantly determines the adoption decision of social media marketing. In addition, smaller firms have been found to be more receptive to new technologies for brand improvement as opposed to their larger counterparts. On the latter basis, therefore, early adoption of social media marketing can be achieved by small and medium B2B firms that are innovative.

3.6. The Role of the Internet and Social Media in B2B Branding

Previous studies have established the significance of branding for B2B firms (Lindgreen, Beberland & Farrelly, 2010; Leek & Christodoulides, 2011). In the current era of increased commoditization, branding works for B2B firms in a manner that facilitates product differentiation by creating consistent identity and uniqueness. The strength of B2B brand, therefore, enhances a firm's perception of quality in the market and further allows firms to extend brand equity to its other categories. Such extensions increase the barriers to entry and further leads to higher demand, which enables firms to command a premium price (Ohnnemus, 2009). In scenarios where competitive biddings is the norm, especially in industrial markets, the consensus in decision-making units can be attained through branded products (Wise & Zendnickova, 2009). In addition, a strong B2B brand in the distribution channel will improve a firm's negotiating power and further open up licensing opportunities (Ohnnemus, 2009). Moreover, higher loyalty from buyers is also likely to be associated with a strong B2B brand, which will further initiate more referrals from customers.

With the emergence of the internet and social media use in business, the same enterprises have appreciated the tools as avenues or channels that add value and allow firms to accommodate connectivity, transactions, circulation of information, and further the reduction of communication costs (Kärkkäinen, Jussila, & Väisänen, 2010). Since the internet has become the most crucial avenue for global B2B commerce, marketers have resorted to the use of the internet for value generation for their brands through a consistent effort to improve conversations, knowledge, e-commerce, and relationships (Järvinen et al., 2012; Keinänen & Kuivalainen, 2015). In the use of the internet to advance B2B commerce, three value addition strategies are advocated for and they include relational exchange, rich strategy, and joint learning strategy. Studies that have examined the vital role played by the internet developing customer relationships in a B2B context have found the internet as an important avenue for advancing relationship marketing (Järvinen et al., 2012; Keinänen & Kuivalainen, 2015; Steyn et al., 2010).

In general, network participants significantly benefit from social networks to advance the use of resources and promote their activities. Social networks, therefore, in a commercial context, provide enormous benefits that seek to enhance the economic value of a firm (Stephen & Toubia, 2010). Studies that have investigated the links between the social networks and B2B firms have found that social networks are crucial in facilitating competition among large firms. In addition, the social media link was found to be crucial for the survival of smaller firms (Brennan & Croft, 2012; Kärkkäinen, Jussila, & Väisänen, 2010; Stephen & Toubia, 2010).

Technological innovation and progress have developed the social media networks through the use of the computer, which has been vital in addressing the challenges posed by geographical locations and time (Saravanakumar & SuganthaLakshmi, 2012). Various solutions from different locations globally can, therefore, be sought through the availed social networks. In light of the significance of the internet and social networks, which enhances direct unmediated inter-firms communication, different studies have argued that social media marketing supports brands by establishing and maintaining relationships in a B2B context. New sources of online information such as photo and video sharing podcasts and websites, blogs, and social networking sites among others have provided an education platform for brands and products. Specifically, Facebook has been considered as the most popular social media platform, which marketers have come to appreciate their potential in assisting the achievement of brand objectives. Michaelidou, Siamagka, and Christodoulides (2011) argue that given the wide acceptance of social media by the general public, it has become a vital internet marketing tool. Research, however, in social network sites and social media is still in the embryonic phase and much focus has been directed to the B2C context. In the same context, social media research has focused on ethics and privacy issues, social networking sites' prevalence among groups, drivers to the use of social media, and revenue generation through the same platform among others. Furthermore, B2C firms seem to have acknowledged the social media potential in brand promotion much earlier than B2B firms.

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Conference Paper

The Role of Corporate Governance in Mitigating Real Earnings Management: Literature Review

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Abstract

The purpose of this paper is to provide a critical review of the existing studies in the literature regarding real earnings management and corporate governance. The paper also addresses the gap in the real earnings management literature in the Gulf Cooperation Countries (GCC) as a major market in the Middle East and proposes future research topics.

Keywords: Earnings management, Real earnings management, corporate governance, board of directors.

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1. Introduction

A series of accounting scandals in the early 2000s had raised many concerns about the quality of reported earnings and matters related to their reliability and credibility. Many people argued that a central part of the accounting scandals was due to the conflict of interest between managers and shareholders (Jensen and Meckling, 1976), having this kind of conflicts can be reflected on the level of earnings management which leads to losses to investors, employees and the economy as a whole. Hence, the financial community started to demand transparent accounting information to able them to make the right use of resources, calculate the company's financial position, and predict the company's' future performance.

Accordingly, earnings management became a great concern to corporate stakeholders and much attention was given to the earnings management topic over the past years. Earnings management can be defined as the purposeful intervention in the financial reporting process to acquire private gain (Schipper, 1989). Healy & Wahlen (1999) described that earnings management occurs when managers use their judgment in altering financial reports and structuring transactions to mislead stakeholders. Beatty (2002) defined earnings management as an informed decision-making process in compliance with accepted accounting principles to increase the reported earnings

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to the level desired by the management. Similarly, Sasaninejad et al. (2014) described earnings management as the intervention in the process of determining the profit which is performed in line with the management's desired goals.

The prior studies classified earnings management into accrual-based earnings management and real earnings management (Gunny, 2005). Both types of earnings management would increase the information asymmetry between managers and interested parties and hide a firm's actual performance, thereby, diminishing financial reporting reliability and credibility (Krishnan and McDermott 2012). However, the majority of the studies focused on investigating accrual-based earnings management (Call, et al. 2014; Sasaninejad, et al., 2014). However, previous studies noted that managers might manage the operational activities besides the accruals (Graham et al. 2005; Roychowdhury 2006; Badertscher 2011; Zang 2012).

Unlike accrual-based earnings management, in which managers manage earnings by taking advantage of the accounting discretion in GAAP, real earnings management involves the manipulation of earnings through real business activities (Xu, et al. 2007). Roychowdhury (2006) described real earnings management activities as "departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial goals have been met in the normal course of operations". The most common methods used in real earnings management are sales management, overproduction of units, the abnormal reduction of research and development (R&D) expenses, timing the sale of fixed assets and the abnormal reduction of other discretionary expenditures. (Gunny 2005, Roychowdhury 2006, Ge and Kim, 2014; Talbi, 2015). These activities would increase the current year's earnings and allow the company to meet its financial reporting targets. On the other hand, these activities would result in reduced cash flows in the next years (Roychowdhury 2006). Hence, it misleads the stakeholders who are concerned by the current and future firm performance (Roychowdhury, 2006; Cohen and Zarowin, 2010).

2. Literature Review

Stock market regulators and investor protection agencies have been always concerned about earnings management, especially after the collapse of several large firms in recent decades. The review of prior literature mentioned that there are two common reasons why managers tend to manage earnings. The first reason is related to financial market pressures and contractual constraints mentioned by the positive political theory of accounting (Watts and Zimmerman, 1990; and Healy and Walhen, 1999). The

second reason is to increase valuations and avoid negative regulatory and contracting consequences (Graham et al. 2005).

There are two possible ways to manage earnings: accruals management and real activities management (Gunny, 2005; Roychowdhury, 2006; Cohen et al., 2008). Accrual-based earnings management was extensively discussed in the literature (Schipper 1989; Healy and Wahlen 1999; Fields et al. 2001). However, real activities management as an earnings management tool was not well understood until recent years. Therefore, relatively few studies in the accounting literature investigated the management of real transactions to distort earnings. Graham et al. (2005) surveyed 401 executives. The results revealed that around 78% of executives prefer managing real activities over accrual-based earnings management to achieve their financial reporting objectives.

It is assumed that firms have different incentives to engage in real earnings management rather than accrual-based earnings management. Many studies showed that managers prefer to manage real business operations to meet earnings benchmarks (Baber et al. 1991; Bartov 1993; Roychowdhury 2006). Moreover, Chi et al. (2011) added that firms tend to engage in real activities management when their ability to manage accruals is limited by higher quality auditors. Besides, it is assumed that it is riskier to manage accrual-based earnings because it would easily draw regulatory investigations and auditor litigations. On the other side, stakeholders of a firm will find it difficult to investigate real activity management. This is supported by Kuo et al. (2014) who noted that Chinese firms have shifted from accruals management to real earnings management because it is less detectable. Furthermore, firms have many flexible options to manage with different activities (e.g. investing, operating, and financing activities). However, firms have limited options to manage accruals by altering accounting choices. Besides, managers can alter reported earnings at any time during the year at their convenience, whereas, accrual earnings management normally takes place as an ex-post form. A study by Ge and Kim (2014) showed that firms prefer to engage in real earnings management in the year of issuing their new bond to mislead rating agencies and accordingly have a lower bond yield spread. Based on what was mentioned above, the recent literature has focused on the investigations on real earnings management.

Previous studies had used different techniques to measure real earnings management (REM). Based on (Berger 1993; Roychowdhury 2006; Cohen et al. 2008; Cohen and Zarowin 2010; Zang 2012; Ge and Kim 2014) studies, they used four proxies to measure real earnings management: abnormal cash flow from operations as a proxy for sales management, abnormal production cost as a proxy for overproduction, the abnormal

reduction of R&D expenses, and the abnormal reduction of discretionary expenses (other than R&D). Also, there are other methods used in prior studies to measure the level of real earnings management. Graham et al. (2004) stated that CFOs confessed cutting or delaying maintenance expenses and the travel budget. They further mentioned that they tend to postpone or eliminate capital investments to avoid depreciation charges, and they manage the funding of pension plans.

On the other hand, real earnings management would raise many concerns in the long term period. Gunny (2005) study analysis illustrated that real earnings management activities (sales management, sale of fixed assets, R&D expenses reduction) have an economically significant negative impact on future operating performance. Besides, Eldenburg et al. (2011) found that firms with stronger performance incentives exhibit a significant incremental decrease in real expenditures in the future.

Real earnings management has remained a largely unexplored area in the literature. Graham et al. (2005) study revealed that managers prefer real activities management over accruals management. This study has motivated the researchers to focus their studies on real earnings management (e.g., Roychowdhury 2006; Cohen et al. 2008; Zang 2012; Talbi, 2015). Firms are switching from accrual-based earnings management to real earnings management (Cohen et al., 2008; Osma & Young, 2009; Gunny, 2010). A study by Ewert and Wagenhofer (2005) noted that when firms are subject to tightening their regulation to improve their earnings quality may force the managers to seek for other management tools such as altering the business operations. Similarly, Cohen et al. (2008) study results indicated that the level of real earnings management activities increased significantly after the passage of SOX in 2002, while accrual-based earnings management declined. Besides, it is assumed that it is difficult for outsiders to detect real operating activities (Graham et al. 2005; Roychowdhury 2006; Cohen et al. 2008). Moreover, managing real activities is less costly to managers than firms and stakeholders (Gunny, 2005 & 2010).

The recent collapse of some large companies resulting partially from accounting manipulation has raised serious questions about the role of different monitoring devices presumed to protect investors' interests and control managerial opportunistic behavior. Based on prior studies, corporate governance is considered one of the most effective monitoring devices. One of the most important monitoring devices is corporate governance. Investors and financial communities expressed concern about the reliability and the quality of reported earnings and the effectiveness of corporate governance systems. Companies started to pay a lot of attention to the need to achieve significant progress to corporate governance perform to assure investors' confidence in financial

reporting quality. Davis (2005) had defined corporate governance as the processes, structures, and institutions within and around organizations that assign resource and power control among the participants.

Earnings management practices would result in producing a low quality of reported earnings that do not reflect a firm's real financial performance. And accordingly, it reduces the investors' confidence in the financial reports. Therefore, companies use different monitoring systems to eliminate managers' opportunistic behavior to increase the transparency and reliability of financial reports. Based on prior literature, it is widely accepted that corporate governance mechanisms can limit a manager's ability to manage earnings (e.g. Beasley, 1996; Dechow, et al., 1996; Jiambalvo, 1996; Peasnell et al., 2000; Chtourou et al., 2001; Xie et al., 2003; Park and Shin, 2004; Peasnell et al., 2005; Jaggi et al., 2009, Lo et al., 2010 and Dimitropoulos and Asteriou 2010). Dechow et al. (1995) mentioned that the main role of corporate governance is to sustain the credibility of financial statements and comply with reporting requirements. Shleifer and Vishny (1997) stated that corporate governance mechanisms could eliminate the inappropriate expropriation of firm resources by managers and it includes all the provisions required to ensure that the assets of firms are efficiently managed to protect the shareholders' interests.

Various mechanisms of corporate governance could affect the firm's performance and managerial behavior such as board composition, ownership structure, internal and external auditing, audit committee effectiveness, etc. Most of the corporate governance-related studies classify the governance dimensions into two major classifications: ownership structure and board composition (Denis & McConnell, 2003; Garcia & Ballesta, 2009).

Board of directors plays an essential role in corporate governance as it is the center of control systems and decision-making (Fama & Jensen, 1983). Fama (1980) mentioned that the board is considered one of the most significant corporate governance tools to monitor the managers' actions. Besides, the board contributes to mitigating the managerial self-serving behavior risk and as a result, enhancing firm value by lowering the agency costs (Shleifer & Vishny, 1997).

The most effective monitoring tool used in corporate governance mechanisms is the board independence from the management (Beasley, 1996; Dechow et al., 1996). Baysinger & Butler (1985) added that independent board members are expected to afford the greatest service to protect shareholders' interests and to monitor managers. Also, Beasley (1996) noted that the number of independent directors of the board is positively associated with the board's ability to influence the disclosure decisions.

Likewise, Hussain (2009) stressed that a high level of board independence would result in enhanced transparency and responsibility using additional voluntary disclosure.

The extant literature shows substantial evidence that board independence is associated with accrual earnings management. Most of previous studies that tested the relationship between corporate governance and earnings management found a negative relationship between the board independence and the discretionary accounting accruals and the occurrence of fraudulent financial statements (Peasnell et al., 2000; Klein, 2002; Xie et al., 2003; Bedard et al., 2004; Park and Shin, 2004; Peasnell et al., 2005; Niu, 2006; Osma, 2008; Chang and Sun, 2009; Jaggi et al., 2009, Lo et al., 2010 and Dimitropoulos and Asteriou (2010). However, Abdul Rahman and Ali (2006) and Siregar and Utama (2008) studies found an insignificant relationship between either board independence or audit committee independence and earnings management. A year later, Iraya et al., (2015) documented a negative relationship between earnings management and ownership concentration, the board size, and board independence, while board activity and CEO duality are positively related to earnings management. Moreover, Patrick et al., (2015) illustrated that board size, firm size, board independence, and strength of the audit committee have a significant influence on earnings management.

On the other hand, as stated by Talbi et al. (2015), real earnings management has remained a largely unexplored area. Few studies discussed the board characteristics and real earnings management. Visvanathan (2008) tested the board of directors' attributes (independence, size, and duality) and the characteristics of audit committees (independence, size, and frequency of meetings) and their effects on real earnings management (discretionary spending, cash flow, and production) over the period 1996-2002. The results revealed that only the board independence, measured by the proportion of independent directors, has a significant negative effect on abnormal production. The researcher justified the lack of relationship between governance mechanisms and management of real activities by stating that real earnings management has limited empirical studies in the literature, therefore, there is a lack of work on detection. He also pointed out the fact that the managing real activities is complicated and accordingly, the establishment of methods for its detection is not an easy task.

A study conducted in the UK by Osma (2008) analyzed the role of boards of directors in constraining R&D spending from the year 1989 up to 2002. The results reported that independent directors are capable of identifying and constraining real earnings management measured by the R&D spending management.

Furthermore, a Korean study by Kang and Kim (2012) determined whether corporate governance mechanisms affect a manager's real operating or investment decision to control reported earnings. The study used firms listed on the Korean Stock Exchange from the year 2005 to the year 2007. The study results indicated that earnings management decreases when the audit committee independence increases or the number of audit committee meetings increases. The results also showed that earnings management decreases when the number of board meetings increases, when the board size increases, when the number of independent directors increases, and when the number of directors who have long experience with the company increases.

Similarly, Talbi et al. (2015) study tested the efficacy of board attributes in restraining real earnings management in 7,481 US firms over the period 2000 to 2009. The results revealed that the board's independence is negatively associated with the level of real earnings management. However, the number of directors is positively associated with the level of real earnings management. In addition, independent board committees are not associated with the level of real earnings management.

On the other hand, a study by Ge and Kim (2014) showed a different result than the above studies. The authors investigated the effect of board governance attributes and takeover protection on real earnings management. Real earnings management level was measured using four activities: overproduction, sales manipulation, the abnormal reduction of other discretionary expenditures, and the abnormal reduction of R&D expenses. The study used panel data from US public firms in the post-Sarbanes–Oxley Act period. The study findings revealed that the level of real earnings management is higher when a firm is faced with tough board monitoring, and that takeover protection may reduce managerial incentives for real earnings management.

3. Future Studies

Based on previous studies, accrual-based earnings management appears to be decreasing because managers realized that the risks and costs of accrual-based management to be higher than its benefits in a heightened regulatory environment. Besides, accruals management has been extensively studied in previous literature (e.g., Klein 2002; Xie et al. 2002; Peasnell et al. 2005; Cornett et al. 2006; Lin and Manowan 2012) while real earnings management has remained a largely unexplored area. Graham et al. (2005) study revealed that recently managers are using real activities to a greater extent than accounting actions to meet earnings benchmarks. Few studies investigated how certain corporate governance attributes relate to real earnings management and

provide mixed evidence (Osma 2008; Visvanathan 2008; Zhao et al. 2012; Ge and Kim 2014; Malik 2015; Talbi et al. 2015).

Furthermore, Talbi et al. (2015) mentioned that real earnings management is more costly to firms and their stakeholders but is less costly to managers. Also, Roychowdhury (2006), Cohen et al. (2008), Cohen and Zarowin (2010) and Chan et al. (2014) agreed that real earnings management may impose high long-term costs on shareholders compared to accruals management, this is because of its negative effects on future cash flows and could affect the viability of the firm negatively. Ewert and Wagenhofer (2005) stated that when accounting regulation is tightened, accounting flexibility is reduced, and as a result, managers tend to use real earnings management techniques.

Corporate governance encompasses all the provisions and mechanisms that guarantee the assets of the firm are managed efficiently and in the interests of the providers of finance, mitigating the inappropriate expropriation of resources by managers or any other party to the firm (Shleifer and Vishny, 1997). The incorporation of independent directors to the board is expected to facilitate and improve the monitoring and control exerted by the board over senior managers, ensuring that managers act in the interests of investors. While there is general agreement that independent boards limit accounting accruals management, there is no previous evidence on whether these directors are capable of detecting and limiting real earnings management practices (Osma, 2008).

The developing markets and, particular, in a major market in the Middle East, which are the GCC countries, corporate governance practices have become an important topic recently. Numerous initiatives have addressed the corporate governance level in GCC countries. However, the prior studies showed that GCC countries, in general, are at their early stages of corporate governance improvement.

The tendency of managing real activities is a challenge to corporate governance practices, so it is interesting to investigate the role of corporate governance mechanisms in eliminating real earnings management. Most of the prior real earnings management studies focused on the U.S. and developed countries. Although GCC countries are considered as developing countries, the impact of the global financial crisis on the GCC region shows that countries in the GCC region are becoming increasingly integrated with the global economy. Thus, GCC countries have paid attention to enhance their corporate governance system. Foreign direct investments in the GCC countries have massively increased and accordingly, the need to improve corporate governance and reduce earnings management practices have become highly important. According to Habbash and Alghamdi (2015) study, Saudi managers are motivated to use earnings

management practices due to different reasons, to increase their amount of remuneration, report a reasonable profit and avoid loss, obtain a bank loan and to increase share price. Numerous initiatives have addressed corporate governance practices to reduce opportunistic earnings management practices. However, prior studies have shown that GCC countries, in general, are at their early stage of corporate governance improvement. A study by Al-Matari et al. (2012) revealed that corporate governance in Saudi Arabia suffers from a weak legal framework, lack of accountability, and poor protection of shareholders. Baydoun et al. (2013) show that Oman is the leader among the five GCC countries, followed by Kuwait and the United Arab Emirates. Bahrain and Qatar rank fourth and fifth, respectively.

The existence of a relationship between the accrual-based earnings management corporate governance has been broadly supported by the literature, both in theoretical and empirical studies in the GCC countries (e.g. Al-Abbas, 2009; Alghamdi, 2012). Shubita (2015) assessed the practice of income smoothing practice in Saudi Arabia, Kuwait, United Arab Emirates, Oman, and Qatar. The study findings showed that income smoothing, on average, improves earnings quality in three countries out of four, however, not significantly for the whole sample.

A recent study by Habbash and Alghamdi (2017) investigated the association between audit quality and accrual-based earnings management in non-financial Saudi listed firms. The researchers claimed that the results of their study support the argument that auditors are powerless in front of managerial opportunistic earnings management activities. Kolsi and Grassa (2017) used a sample of Gulf Cooperation Council (GCC) Islamic banks to examine the impact of corporate governance mechanisms on accrual-based earnings management activities. The study revealed that a large board size, director's independence, and audit committee meetings are negatively associated with accrual-based earnings management.

Until now, the relationship between real earnings management and corporate governance is far from well understood in the Gulf Cooperation Countries (GCC) region. In the Gulf Cooperation Countries, there are limited studies that discussed corporate governance and real earnings management. Future studies can focus on the role of the board of directors and the audit committee in eliminating real earnings management practices. Accordingly, there is a need to understand the role of the board in promoting or constraining the real earnings management in the GCC. A future comparison study can be conducted between the different earnings management techniques to see whether the updated corporate governance regulations in the GCC region countries are effective in mitigating earnings management practices. Moreover, it would be also

interesting to test the impact of institutional ownership and family ownership on real earnings management in the region since the family ownership level is relatively high in the GCC region.

Researchers can also link corporate social responsibility (CSR) with real earnings management. Countries are moving toward paying more attention to corporate social responsibility. For example, the United Arab Emirates Council of Ministers has issued a new Law concerning Corporate Social Responsibility (CSR) in the UAE which came into force in 2018. Some of the previous studies argued that there is a negative relationship between corporate social responsibility and earnings management because managers tend to mask their earnings management practices by being active in corporate social responsibility activities. Grougiou et al. (2014) study documented that although banks that engage in EM practices are also actively involved in corporate social responsibility activities. Scholtens and Kang (2013) study showed that Asian firms with relatively good corporate social responsibility level are engaged significantly less with earnings management. Due to the inclusive results provided by the previous studies, testing the relationship between corporate social responsibility, corporate governance and real earnings management in the GCC countries would be interesting.

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