Characteristics of Design Managers

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Abstract: Design Management (DM) is a relatively new profession in the Kingdom of Saudi Arabia (KSA); there is no corresponding training and/or educational programme implemented in the KSA. In this study, the researchers sought to discover the specific characteristics of design managers by developing a competency framework for Design Managers (CFDM) and by analysing the learning outcomes of nine undergraduate Design Management academic programmes that are offered at universities in various countries. This research is one segment of a series of studies that will highlight the career development of a design manager. This study addresses the following question: What are the competencies and skills of a design manager? The contribution to new knowledge will provide an excellent introduction to the field of design management for readers who are unfamiliar with this topic, and this study will help to better define the role of a Design Manager. The researchers sought to help curriculum decision-makers understand the importance of Design Management academic programmes by presenting the primary issues related to curriculum, teaching and learning that should be considered when new courses are developed.

Keywords: Design Management, Design Manager, Academic Programs, Saudi Arabia, learning outcomes.

1. Introduction:

DM is a new profession in the KSA, and there are no such training programmes implemented in higher education. Pure design programmes exist that allow students to graduate with significant drawing skills, and there are business programmes that allow students to graduate with expansive managerial skills. However, programmes do not exist that combine design with management. This study investigates the learning outcomes of nine Design Management academic programmes and provides insights into the role of a Design Manager and the reasons behind those learning outcomes. Learning outcomes are statements regarding what learners will know or be able to do as a result of teaching.

In this study, the researcher developed a CFDM by describing the knowledge and skills that were offered by undergraduate design management educational programmes that operated in different countries.

1.1. Design

Design is a broad term that includes many aspects of life. Each individual perceives design differently (Gerlitz *et al.*, 2016). Certain individuals may perceive design as colours and specific forms or just a piece of art (Elsy, 2015). The term design is both a noun (an outcome) and a verb (an activity). Design includes meeting people's needs whether by products or services, buildings, organizations or environments that we interact with daily (Best, 2015; Chiva & Alegre, 2009).

Currently, design is considered one of the most important tools for innovation and gaining competitive advantages (Kramolis *et al*., 2015). Kotler and Rath stated that through creative use of design features such as appearance, quality, and durability in connection with information, corporate identities, products, and environments, design impacts the profitability of a company and may improve consumer satisfaction. These scholars noted the importance of design in products and packaging by highlighting certain companies that focused on product execution, promotion, pricing, supplying and personal selling, but lacked a "design touch". For example, these companies used plain packaging, dull brochures, and prosaically styled products (Kotler & Rath, 1984).

Recently, business methods have been combined with design development. Design management addresses this merge through two primary schools of thought. The focus of the first school is on organizing the design firm and the second school of thought focuses on enhancing the understanding of the design process. Both schools analyse design through a design professional perspective (Tzortzopoulos, 2007).

1.2   Design Management

1.2.1 Design Management as a field of study

Design management is a combination of the design and management fields (Best, 2015; Anders, 1998). Design management seeks to determine efficient and excellent designs through organizational and managerial skills (Chiva & Alegre,2009) and is a new concept that includes design practice and

management science (Green, *et al.*, 2014; Sun *et al.*, 2011; Chiva & Alegre, 2009). However, there is clear distinction between the education of a designer and a manager because a manager is strongly analytical, verbal and includes team players, but designers are more visual and are generally creative loners (Anders, 1998).

Design management is a powerful tool that provides companies with a competitive advantage and makes business more effective (Lucerne University, 2016; Chiva & Alegre, 2009; Kootstra, 2009; Tzortzopoulos, 2007; Hollins, 2002). Design management is needed by businesses because it allows companies to effectively use design for innovation purposes, stay aligned with the market, maintain greater information efficiency and meet consumer's needs and satisfaction (Kootstra, 2009; Kotler and Rath, 1984). Design management better impacts business performance when it is a component of management processes and helps secure a strong market position in the long run. Ahire & Dreyfus discussed the effect of design management on product design and quality management processes (Kootstra, 2009; Ahire & Dreyfus, 2000). Business leaders perceive design as a strategic advantage tool and the value of design is increasing (Bruce & Bessant, 2002).

1.2.2 Design Management as a practice

A single definition for design management does not exist, similar to "design" or "business" (Best, 2015). Many scholars have argued that design management began in the 1960s, but other scholars have argued that it emerged in the 1970s (Sun *et al.*, 2011; Ashton & Deng, 2008). Design management is defined by the British Design Council as a consistent approach to incorporate design activities, which adds to the quality of the company as perceived by employees and customers (Ashton & Deng, 2008). Sun *et al.* stated that the status of designers was not noticeable in most organizations, but the recognition of the value of design by business success was well known. That study lead to the urgent creation of promotions for designers in the business world (Sun *et al.*, 2011). Currently, the UK operates one of the longest-lasting design management education systems (Ashton and Deng, 2008).

However, over the past 30 years, design management has been used as a tool to develop suitable processes and methods that incorporate design into businesses (Baars & Ruedi, 2016). As mentioned by several scholars, "Good design does not happen by accident, but rather as the result of a managed process" (Chiva & Alegre, 2009; Kootstra, 2009; Bruce & Bessant, 2002; Ahire & Dreyfus, 2000).

Scholars agree that design management is distributed in different categories throughout an organization; however, organizations differ in how

they are defined. Koostra illustrated that the design management professional field broadly emphasizes visual and non-visual aspects; visual aspects include brands and products and non-visual aspects include beginning processes and end with the delivery of a product or service (Kootstra, 2009). Mozota and Best noted that design management may be incorporated into three levels of an organization, including strategy, tactics and operations (Best, 2015; Mozota, 2003). Best provided examples of activities at each level: strategic (e.g., mission, policy, corporate design and strategy), tactical (e.g., processes, systems, teams, and design organization), and operational (e.g., physical product and services) (Best, 2015).

In addition, Cooper & Press stated that design management actions are distributed within three management levels: the board, middle management, and design activity. Those actions include planning, organizing, implementing, monitoring, and evaluating (Cooper & Press 1995). Baars & Reudi's study summarized these actions by stating that design occurs at all management levels of an organization (Baars & Ruedi, 2016; Bruce & Bessant, 2002). However, there is a need for efficient synchronization between all functional departments within an organization (Baars & Ruedi, 2016).

It is evident from a literature review of prior studies that discussed design management, that DM is a unique discipline that requires distinctive methods and skills (Green *et al.*, 2014). Design management's role is to connect the purpose of the organization with the function of design (Baars & Ruedi, 2016).

Kootstra divided design management into four levels (no DM, DM as a project, DM as a function, and DM as a culture). To clarify these levels, Kootstra determined that five factors (awareness, process, planning, expertise and resources) act as indicators for good design and explain the success or failure of design. Table (1) is a matrix that provides brief explanations of each factor:

Kotler & Rath stated that "there are eight stages in the new product development process: 1. Idea generation, 2. Screening, 3. Concept development and testing, 4. Marketing strategy, 5. Business analysis, 6. Product development, 7. Market testing, and 8. Commercialization". Designers should be included into these processes at an early stage when concepts are being developed and generated, because their capabilities allow them to generate unique ideas. A common management mistake is including designers at stage six, which is too late. However, if designers are included earlier in the process, they can propose interesting ideas during the development and testing stage that deserve to be considered before decisions regarding the final concept are made (Kotler & Rath, 1984 p.19). For this reason, designers should

understand business perspectives regarding design issues and they need to learn to speak the business language to gain insight into decision-making processes (Green *et al.*, 2014).

Table 1: Design management maturity grid. Source: Kootstra, 2009.

FACTORS	DESIGN MANAGEMENT CAPABILITY LEVELS			
	LEVEL 1: NO DM	LEVEL 2: DM AS PROJECT	LEVEL 3: DM AS FUNCTION	LEVEL 4: DM AS CULTURE
AWARENESS (OF BENEFITS)	Not aware of benefits and potential value of design (unconscious use or no use)	Some functional specialists are aware	Most are aware that it is important to remain competitive	All are aware that it is fundamentally important to gain a leadership position
DM PROCESS	No idea where design fits within current processes	Performed inconsistently and late in development process; not repeatable across projects	Performed consistently and early; formal DM process drives performance	Ongoing activity; business is engaged in continuously improving DM process
PLANNING	Company / marketing plans do not mention the use of design	Limited plans and objectives exist at the individual project level	Plans and objectives exist which set direction and integrate design in various activities	Design is part of strategic plans; design planning is a dynamic process that drives the business
DM EXPERTISE	Little or no skills to handle design activity; no DM tools applied	Some skills; basic DM tools applied inconsistently; lots of room for improvement	Standard DM tools applied consistently; some room for improvement	Appropriate expertise; use of advanced DM tools; appropriate metrics used
DESIGN RESOURCES	The business has not committed resources to design activity (may not appreciate the potential return of design investment)	Limited resources are allocated for individual projects; one-off design investments with no review of potential returns	Sufficient resources are allocated on the basis of potential return, but with limited procedures in place to assist in decision making	Substantial resources are allocated, with financial procedures in place to assist in appraising investments, assessing risk and tracking returns

1.3 Design Management academic programs:

For the purpose of this research, the researchers considered several Design Management bachelor programmes in various countries, with the understanding that cultural differences would be inherent in the analysis. Ashton & Deng outlined methods of teaching and learning and discussed different curricula; the needs of the labour market must be considered when transferring educational programmes between different cultures (Ashton & Deng, 2008).

Green *et al.* criticized certain design schools and indicated that students graduated without the appropriate skills to function properly in a business environment. In addition Green *et al.* suggested that an effective Design Manager should understand the business, not the customer. Furthermore, the key to success lies in knowing and combining the values and language of business into the practices and presentations of the designer. Designers should know both the design processes and the process of introducing products into the market (Green, *et al.*, 2014; Kotler & Rath, 1984). Kotler & Rath added to Green *et al.*, stating that education must provide students with an understanding of the design and marketing processes.

The design management curriculum has grown over the past two decades (Ashton & Deng, 2008). Design management education has two objectives; the first objective is to fill the gap between the managers and designers by familiarizing each with the other. The second objective is to incorporate design into organizations (Borja De Mozota, 2003). Design management needs qualified, experienced staff that

has both design and management skills. Baars & Ruedi stated that educational programmes must focus on a mix of knowledge, skills, realistic projects and attitudes. Green *et al*. stated that team work and the ability to understand strategic planning is important for design managers; their education must include courses such as economics and business accounting, interpersonal skills, and advanced design principles. Briggs added that a design manager should have both written and verbal communication skills (Green *et al*., 1998).

Therefore, the learning outcomes of design management programmes ensure that students have the ability to achieve relevant experiences through a proper understanding of human psychology and behaviour (Baars & Ruedi, 2016; Ashton & Deng, 2008; Briggs *et al.,* 1998). Green *et al*. added that skills, such as problem analysis, management and negotiation skills, understanding the market and competitors, business knowledge and understanding the design process, are necessary for design management students (Green *et al*., 2014). Ashton & Deng noted the importance of innovation and Gornick noted that globalization, technology, the transformation of the business environment and social skills were also important (Ashton & Deng, 2008; Gornick, 2008). Tzortzopoulos stated that problem solving and creativity were also relevant skills (Tzortzopoulos, 2007). Green *et al.* mentioned that

although design management programmes help students obtain the needed skills, organizations need to encourage and enhance the skills of their employees and provide continuous learning opportunities (Green *et al*., 2014).

By reviewing nine undergraduate Design Management academic programmes that operated in various countries and universities, this researcher determined that programmes included Management, Design, Leadership, and design with management subjects; however, differences existed in the Academic Bachelor programmes (Design Management) around the world:

1.3.1 London College of Communication – UK/ BA (HONS) DESIGN MANAGEMENT AND CULTURES

This degree supports the development of innovative thinking and creative design through the student's own vision. The programme helps students gain necessary knowledge, technical and design skills and management practices that are needed for the field. Students also gain an understanding of how they relate to real-world experiences.

Career opportunities include project managers, design managers, consultants, and entrepreneurs.

Other career options may include working with marketing and advertising agencies, museums and galleries, research or education.

Table 2: Credit hours and concentrated Modules in the design management academic programme at the London College of Communication – UK.

Programs	Credit hours	Management	Leadership	Design	Design and management
London College of Communication – UK BA (HONS) DESIGN MANAGEMENT AND CULTURES - http://www.arts.ac.uk/lcc/courses/undergraduate/ba-hons-design-management-and-cultures/	340-260 credits	Project and practices Collaborative project Marketing communication and cultures	-	Global design case study	Introduction to design management and cultures Design management Creative industries and economies

1.3.2. Lucerne University – Switzerland/ Bachelor of Arts in Product and Industrial Design with Specialization in Design Management

This programme seeks to graduate students with capabilities and skills that allow them to manage design projects through a proper understanding of stakeholders' needs. Such projects may include brand management, product development, or other design related services.

Design managers primarily work as project managers but are also active in marketing and business

communications. To ensure superior design results, collaboration between design and management is necessary.

Students graduate with an understanding of design and its disciplines from a management and organizational perspective. Students are also provided opportunities to manage designs from a real-world experience, where they have the opportunity to practice the skills they have learned.

Table 3: Credit hours and concentrated Modules in the design management academic programme at Lucerne University Switzerland.

Programs	Credit hours	Management	Leadership	Design	Design and management
Lucerne University – Switzerland - Bachelor of Arts in Product and Industrial Design with Specialization in Design Management https://www.hslu.ch/en/lucerne-school-of-art-and-design/degree-programmes/bachelor/alle-angebote/bachelor-design-management-international-detail/	Unknown	Market research Marketing Project management Business management Accounting Law Intellectual property Organization of structures	Design thinking Decision-making Innovation and creativity Entrepreneurship Leadership Intercultural communication International management	Design history Art history Cultural studies Design disciplines Design process Design methodology	Service design Design management theory Operational design management Strategic design management Brand management

1.3.3 American University of Sharjah – UAE/Bachelor of Science in Design Management

Graduates of this programme have obtained the knowledge, skills and confidence that allow them to work with event managers; as project managers, with client service agencies, and with advertising agencies.

Graduates of design management are also qualified to work as freelance design managers for individuals or organizations. Graduates may also establish design companies by building business plans and developing marketing strategies for companies.

Table 4: Credit hours and concentrated Modules in the design management academic programme at the American University of Sharjah – UAE.

Programs	Credit hours	Management	Leadership	Design	Design and management
American University of Sharjah – UAE- Bachelor of Science in Design Management https://www.aus.edu/info/200135/undergraduate_programs/265/bachelor_of_science_in_design_management/2	120 credits	Principles of microeconomics Principles of macroeconomics Fundamentals of management Writing for business Fundamentals of marketing	Innovation and strategy Human interaction and behaviour The design profession Design thinking Organizational behaviour	Descriptive drawing Introduction to arch, art & design Design foundations History of design	Communications design Fundamentals of design management Design project Design management Service design Exhibition project

1.3.4. Berkeley College – USA/BBA Design Management

This programme provides students with a strong base in both design and business. Design management fills the gaps of both disciplines of design and management by mixing strategy, marketing, communication, technology and design. Several courses of this programme allow students to develop analytical and managerial skills.

This programme also provides students with opportunities to apply their skills and collaborate and lead professional teams from various types and sizes of organizations.

Table 5: Credit hours and concentrated Modules in the design management academic programme at Berkeley College – USA.

Programs	Credit hours	Management	Leadership	Design	Design and management
Berkeley College – USA BBA Design Management http://berkeleycollege.edu/academics_bc/9904.htm	42 uni credits Faculty 48 credits Major 48 Credits Total 138	Contract administration Project management Principles of management Principles of marketing	Human resources and organizational behaviour	-	Design management Managing creative organizations

1.3.5 EU Business School – Barcelona – Geneva – Montreux/ BA - Bachelor of Arts in Business & Design Management

This programme seeks to discover the business side of design and includes graphics, industrial, product, interaction, environmental and fashion design. It also provides students with the skills needed to understand the design industry's technology, materials and constraints.

A graduate is qualified to manage areas such as business design, product and brand design, urban and architectural design, and service design. Students may opt to start their own businesses by representing designers, brands or artists.

Table 6: Credit hours and concentrated Modules in the design management academic programme at the EU Business School – Barcelona – Geneva – Montreux.

Programs	Credit hours	Management	Leadership	Design	Design and management
EU Business School - Barcelona Geneva Montreux BA - Bachelor of Arts in Business & Design Management https://www.euruni.edu/euruni/Programs/Undergraduate-Bachelor/BA-Design-Management/Overview/BA-Bachelor-of-Arts-in-Business-Design-Management.html	151 credits 53 subjects	Foundations of business management Marketing management Accounting Microeconomics Macroeconomics Ethics in business Business law Strategic marketing Business finance Global economics Financial markets Consumer behaviour Sales and purchasing management Stars and management Budgeting and control Organizational communication Financial statement analysis Corporate finance Industrial marketing	Entrepreneurship and new venture creation Global business Negotiation Strategic management Small business management	Environmental sustainability Advertising, media and branding Introduction to world of design History and contemporary design Luxury and design Hotel and design Wineries, architecture and design	Production management E-business Designers and management Social media marketing Graphic design and management Interaction design, motion design and management Photography management Event design and management

1.3.6. Paris College of Art – France/ Bachelor of Arts in Design Management

This programme primarily provides students with necessary social skills and the problem-solving, managerial, entrepreneurial and leadership skills needed to become a strategic designer and/or design manager. Graduates of this programme may begin a career in business organizations that integrate design and management practices.

Table 7: Credit hours and concentrated Modules in the design management academic programme at Paris College of Art – France.

Programs	Credit hours	Management	Leadership	Design	Design and management
Paris College of Art - France https://www.paris.edu/programs/undergraduate-programs/design-management/	120 credits 39 subjects	Finance and accounting Marketing Principles of retailing	Entrepreneurship Project management	Introduction to design management Moving image Introduction to digital media Introduction to art and design Introduction to design studies Human-centred design	Sustainable design and business Innovation and organizations Art and culture management

1.3.7. The New School – Parsons – USA/ Strategic design and management (BBA)

The curriculum of this programme combines entrepreneurial skills, innovation, different areas of management, visual communication, art and design history and theory. Students are provided opportunities to work with professionals and practice their skills with entrepreneurs and designers at corporations.

Table 8: Credit hours and concentrated Modules in the design management academic programme at the new School – Parsons – USA.

Programs	Credit hours	Management	Leadership	Design	Design and management
The new School – Parsons **STRATEGIC DESIGN AND MANAGEMENT (BBA)**USA http://www.newschool.edu/parsons/bba-design-management/	120 credits 41 subjects	Marketing, PR, and Branding Financial Management Business Models and Entrepreneurial Strategy Business Regulations and Practices	Managing Creative Teams Strategic Management Ethical Decisions and Leadership	Global professional practice	Business Design and Planning

1.3.8. Radford University – UK/ BSc Design Management

This degree programme provides students with a fundamental knowledge of business, analytical problem solving, decision-making and administrative practices. There are many career opportunities for design management graduates that include the following: design managers, branding, public relations, marketing, HRM within design industries, creative directors and entrepreneurship.

Table 9: Credit hours and concentrated Modules in the design management academic programme at Radford University - UK.

Programs	Credit hours	Management	Leadership	Design	Design and management
Radford University - UK **BSc Design Management** https://www.radford.edu/content/cvpa/home/idf/programs/management.html	120 credit hours Uni – 43 Faculty 27 Major - 50	Principles of Marketing Professional Selling	Organizational Behaviour Professional Practice Management New Ventures Own & Mng Business Entrepreneurship & Innovate	Design fundamentals Introduction to design Design psychology Media Presentation Global Studio	Business of design

1.3.9. The Art Institute of Colorado – USA/ Design Management Bachelor of Arts

This programme prepares students to manage projects and lead teams. Students are expected to acquire a set of skills that include problem-solving and business related skills such as PR, marketing and accounting, critical thinking, professional leadership and team building.

Students acquire these skills by conceptualizing ideas and putting them into practice and through a proper introduction to the fundamentals of design and how they are applied in business practices. In addition, students have the opportunity to apply business practices such as behaviours and standards to design.

Table 10: Credit hours and concentrated Modules in the design management academic programme at the Art Institute of Colorado – USA.

Programs	Credit hours	Management	Leadership	Design	Design and management
The Art Institute of Colorado - USA **Design Management Bachelor of Arts** https://www.artinstitutes.edu/denver/programs/design-management/914 http://content.artinstitutes.edu/assets/documents/denver/catalog.pdf	180 credit hours Uni – 54 Major 126 56 subjects	Business communications Global marketing Finance principles Fundamentals of business Public relations Public strategy Consumer Behaviour and Persuasive Sales Techniques Fundamentals of Marketing Fundamentals of Advertising	Contracts, negotiation and copyrights. Leadership and teambuilding Organizational behaviour	Design fundamentals Observational drawing Image manipulation Digital colour theory Forms and space Technology and productivity	Portfolio of design management Managing Creativity and Innovation Design management externship Design Management studio Introduction to design management

1.4 Design manager:

Prior studies have demonstrated that a design manager must possess an appropriate mix of knowledge and skills related to management and design. A senior designer or manager cannot necessarily become a superior design manager. Green *et al* and Barrs & Ruedi stated that a design manager is an individual who is highly skilled in design and has a broad perspective of all related disciplines, specifically management and is not specialized in one particular field (Baars & Ruedi, 2016; Green *et al*., 2014).

Gornick analysed real-world examples from the UK (e.g., British Rail and British Airways) and demonstrated that design managers have become recognized specialists in a variety of companies (Gornick, 2008).

Figure 3 highlights a potential division of the two skills: design content and management content, and demonstrates three areas of focus per axis. All nine possible roles would be incorporated in the field of design management (Baars & Ruedi, 2016).

From these nine-design management roles, there are six additional functions to those commonly identified in a one-dimensional model of design management. These extra roles reveal that roles vary according to the design context. For example, at a structural level there are three roles: planner, organizer and developer.
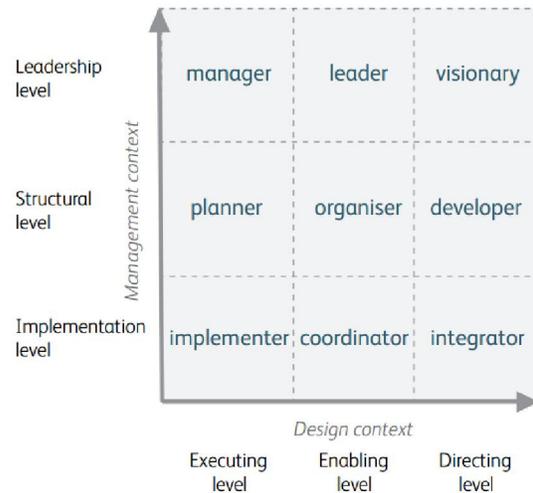

Figure 1: Design management roles. Source: Baars (2016).

Planner: activities focus on executing the task of design at a structural level of management.

• The design manager (DM) planner organizes several design activities within a company. Therefore, they may define the design tasks and establish design teams. The DM planner may also procure the assistance of relevant design specialists. It is the duty

of the design planner to ensure that designs are properly executed..

Organizer: activities focus on enabling design at a structural level of management.

• The DM organizer coordinates between various parties involved in the design process and acts as an interface. For example, with regards to supply, design managers assume the role of account managers by developing the appropriate briefing and requirements, which leads to a design resource plan.

Developer: activities focus on directing the design function at a structural level of management.

• The DM developer seeks to improve design by incorporating design methodologies as needed. They may offer assistance and insight with the application of a project, such as assisting with branding or developing new products. In an organization, the DM developer could act as a catalyst to different groups within the company, acting as a mentor or providing support when needed.

Baars & Ruedi stated that design managers should be proficient in four clusters of competencies: "Managing the design process"; "Mediating business value"; "Building a creative environment" and "Connecting and convincing others" (Baars & Ruedi, 2016).

The Design Manager should be capable of managing the design process; the DM chooses, plans and structures activities related to the design process to achieve positive outcomes. The DM may need to liaise with designers, clients, marketers and business managers and organize the demand functions with the delivery functions. A DM must be able to coordinate the different parties that are involved in a project and ensure the completion of the project achieves the predetermined goals. The DM is an active member of the project team.

The second competency cluster, "Mediating business value", is related to the DM's ability to connect the design task with an organizational target or intention. Context sensitivity is fundamental; the different parties will generally have varying expectations concerning the process, activities and resources. Therefore, the DM may need to liaise between stakeholders to arrange suitable transactions and ensure fairness and effective design results.

"Building a creative environment" refers to the Design manager's capability to construct a high performing yet creative team. The Design Manager should encourage all individuals to share and exchange their views and opinions. The creative environment must be nurtured because it is conducive to a successful workplace that produces outstanding design products.

The final competency cluster, "connecting and convincing others", focuses on the DM's ability to communicate and sustain engagement among individuals who are active in the design process with the organization's purpose and vice versa. The DM should relay a client's vision to the design team effectively and with clarity.

Design Managers need to incorporate a holistic perspective as they work. The four competencies provide clarity as to the general description of the mixture of skills and abilities that this role requires. There is a rational side of design, but the emotional side must be acknowledged to ensure optimal outcomes. The 14 individual competencies provide a detailed overview of the knowledge, skills and abilities required for DM positions. The four competency clusters and the individual competencies are presented in the table below (Baars & Ruedi, 2016).

Kang *et al's* study established a competency model for design managers through an analysis of theory. These scholars conducted a survey in South Korea that investigated the competencies perceived to be important for middle-level design managers.

1.5 Who is the Design Manager and what knowledge and skills do they possess?

The role of Design Manager is becoming increasingly more important. This job role may be given different titles such as design director or design officer. However, the primary responsibility of a DM is to solve any design complications or problems that may occur over the course of a project.

The discipline of Design management is unique and demands an exceptional set of learned skills and procedures. In the majority of companies, design managers advance from the ranks of design practitioners (Green *et al*., 2014).

The Lucerne University website states that Design Managers ensure that all aspects of design work effectively and that projects are successful. DMs must be able to communicate effectively to a variety of individuals and they also provide updates and briefings during projects. A shrewd awareness of design methods is essential and an understanding of human skills, such as empathy, is crucial because the DM often negotiates between different parties (Lucerne University, 2016).

Design Managers should be competent professionals and possess appropriate qualifications (e.g., RIBA, MICE, MIOB, etc.) If the role of a Design Manager is not well understood, issues may arise in regards to poor training or employment of individuals who are unable to cope with the demands of the role.

Table 11: The competency model for design managers (CMDM) source Kang et al., (2015 p161).

Category	Level	Strategic level		Tactical level		Operational level	
Cognitive competences	Knowing	Knowledge of new disciplines (contextual knowledge; market trends; business/finance; sustainability; IP)	23.13 %	Knowledge of organization/ basic project management skills	5.44 %	Design knowledge (design language/principles/research; knowledge of professional design practice)	4.76 %
	Understanding	Understanding market/stakeholders/ system/context/good design criteria	17.69 %	Understanding relationships in processes/projects/business	2.04 %	Understanding design acumen and aesthetic sense	4.08 %
	Thinking	Versatility in analytical and intuitive thinking; Framing; Holistic/connected thinking	36.05 %	Facilitating ideas (idea generation/transfer); Recognizing and empathizing with other perspectives	2.72 %	Translating needs and requirements into creative/innovative ideas	4.08 %
Functional competences	Conceptual work	Clarifying vision/design goals & aligning with business strategy; Managing design assets/output	36.05 %	Managing design team/project/ process/resources (resourcing; combining; coordinating)	17.69 %	Observing users/real context; Interpreting and capturing latent needs (various user research methodologies, tools)	11.56 %
	Implementational work	Creating coherent total experience throughout all design touchpoints	12.93 %	Visualizing information for effective knowledge sharing/cooperation	6.80 %	Implementing design skills & expertise (visualization; prototyping; design tools)	21.09 %
Social competences	Communication	Creating/deploying/sharing business/brand story (vision, goals) among stakeholders	6.80 %	Communicating with all stakeholders/ different disciplines/users	19.73 %	Visual communication; Visual storytelling	2.72 %
	Relationship	Building/managing strategic relationships with partners	2.72 %	Facilitating (multi disciplinary) collaboration; Managing relationships (conflicts; flexible culture; motivation; training)	45.58 %	Engaging users/stakeholders in design process	8.16 %
Meta-competences	Attitude/Mind	Tolerance for uncertainty/complexity; Generalistic perspective	5.44 %	Tolerance for tension and conflict; Embracing diversity; Multifunctionality	2.72 %	Initiative to improve by iteration; Pursuit of high quality	6.12 %
		Creativity; Innovation; Challenge; Exploration					6.80 %
		Empathy; Flexibility; Resilience; Persistence					26.53 %

2. Data Analysis and Results

Prior studies have developed the fundamentals of Design management as noted in Figure 2. Design management, as a terminology, may be refer to a subspecialty in the field with the relationship of a culture based on the intersection of design, management, business and communication. Design management may be perceived as a profession based on performance related to business and design activity or as a functional relationship based on strategy, tactics and the operational process of production. Design management may also be perceived as a process that represents the intersection of design and management in a framework of a project that requires creativity and innovation. In this context, it could be argued that all of the definitions of design management consider the product or service as its basis.
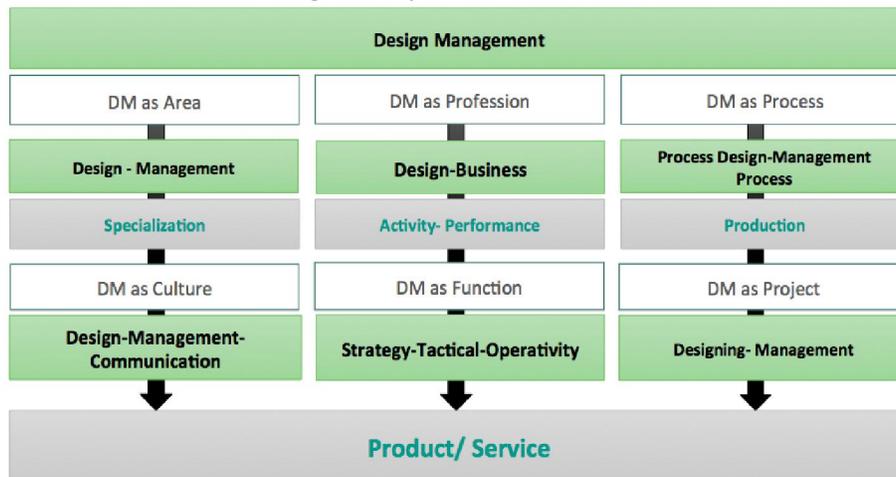

Figure 2: The fundamentals of Design management

Scholars have illustrated Design Management as a practice, as noted in Figure (3). Three elements link the definitions of design management practices together. These definitions can be linked by the products' dimensions, represented in visual dimensions (brands) or non-visual dimensions (services). Definitions may also be linked with the different levels of management that are represented in strategy (mission), tactics (systems), and operations (products). Furthermore, the definition of design management practices may be linked to different levels of actions by board members and may be management specific regarding design activities.
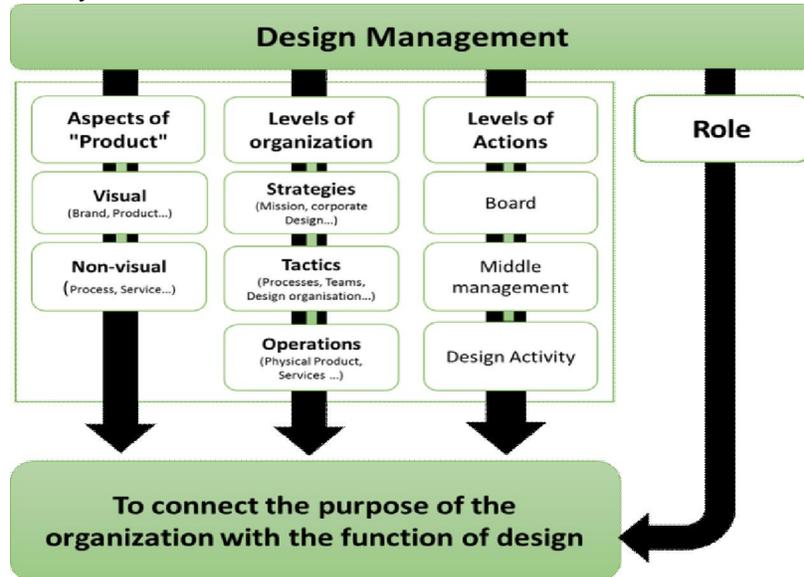

Figure 3: Design management as a practice

Design management may be initially expressed in accordance with the characterization of a conceptual framework based on the intersection of design and business practices.

In the design context, design management may be defined as a holistic description based on design and may include knowledge, capacity, specialist skills and creativity and innovation.

Design management is also based on business and the concepts that this area requires, including business management, strategy, production, and product use.

From this perspective, the initial definition of the design manager stipulates that a designer must possess the ability to develop and manage projects to achieve great financial returns using the available resources in the shortest possible time. A DM becomes a leader by aligning his/her abilities, skills and specific knowledge.
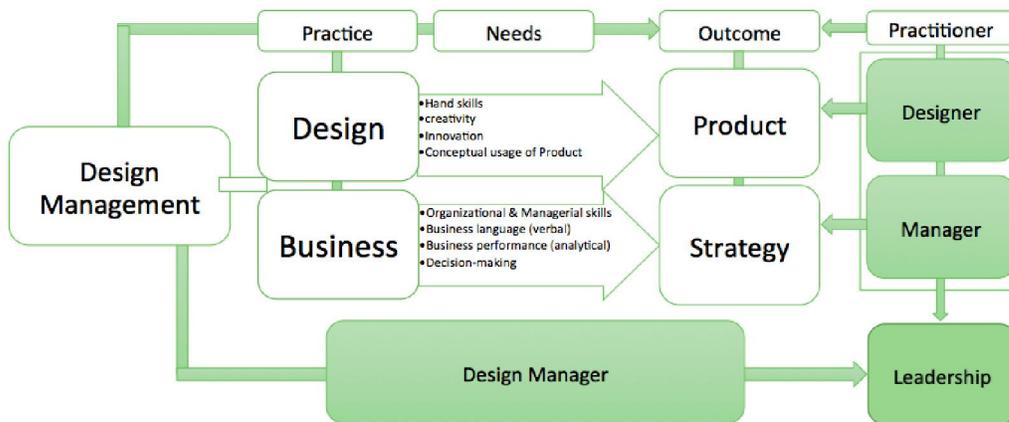

Figure 4: Design management as an area

Prior studies have determined the fundamental knowledge and skills that are needed by a DM, as illustrated in Figure (5). Knowledge and skills needed by the design manager may be defined in accordance with an intersection of knowledge and skills in design.

This intersection is a combination of innovation and creativity that is enhanced by the knowledge and skills that are displayed by the leader during management of the entire design process.
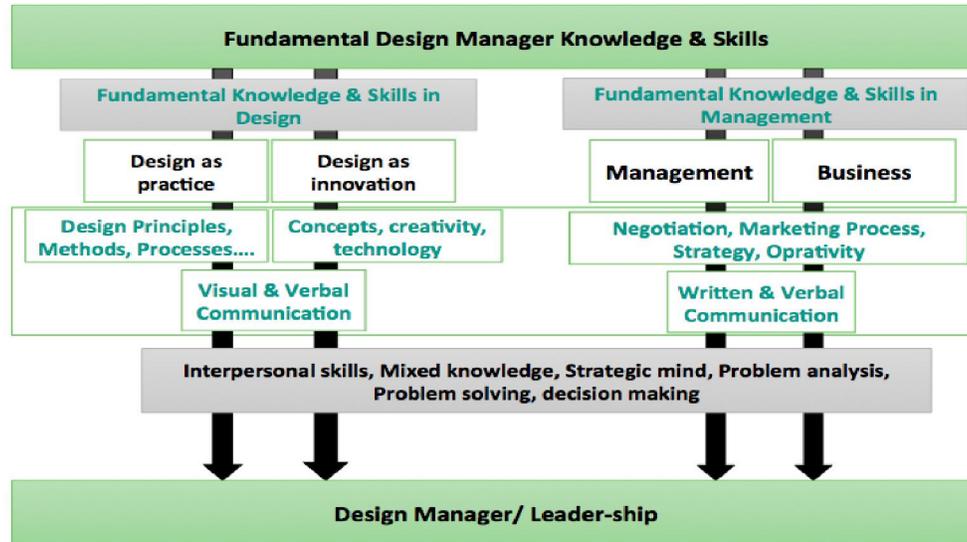

Figure (5).

In this context, a design manager must have capabilities and skills that are concentrated in design and are reflected by a number of scientific and practical competencies (fundamentals, principles, methods and process design) and communicative tools that reflect ideas in the form of creative outputs. An innovative design manager must also be able to communicate ideas visually and verbally.

A design manager must be proficient and possess abilities and skills related to management, which are reflected by a number of scientific and practical capabilities including planning, strategies, tactics and processes. In addition, a DM must possess linguistic skills that will enable effective communication in writing and verbally with others and must also possess the ability to negotiate and critically discuss relevant issues.

This study specified a focused framework of the roles of a design manager and provided an inclusive, integrative review of the required skills, knowledge and expertise that are necessary for design managers to be able to cope with the technological and communicative developments that may be included in various design projects.

3. Conclusion:

This study demonstrated that a greater emphasis is needed on creating tailor-made programmes to reflect the growing need and demand for design managers. The competency framework for Design Managers (CFDM) indicates that a Design Manager should be a competent professional that is confident in their knowledge and design skills. However, curriculum decision-makers should also consider interpersonal development when training an individual for the role of a Design Manager. When developing new courses, the four competency clusters should consider and used as a tool to structure curriculum programmes.

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