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DESIGN THINKING AND QUALITY MANAGEMENT IN ARCHITECTURE AND DESIGN FACULTIES: FROM ACCOUNTABILITY TO EMPOWERMENT AND CREATIVITY

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Abstract. This research aims at enabling and developing quality management in art and design faculties through the understanding of the relationship between quality management and the systems of design thinking. Moving away from merely achieving quality standards to integrating administrative work and creativity in meeting these standards. The research culminated in the creation of an equation that elucidates the incorporation of quality management into the structure of design thinking, emphasizing recurring thematic elements. These themes are rooted in the foundational principle of continuous improvement in efficiency and effectiveness, underscoring the central role of human involvement in planning, implementation, and development processes. The overarching objective is to attain optimal effectiveness through proactive participation and collaborative initiatives. This highlights the necessity of conducting multiple applied research studies to promote and validate this paradigm within higher education institutions.

Keywords: administrative creativity, art and design, design thinking, higher education, quality management, total quality management.

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1. Introduction

The research title indicates that design thinking and quality management are linked in higher education institutions, specifically architecture and design faculty which aims to assist academics in arts and design faculties to better understand the principle of quality management work and move away from the idea of standards achievement and toward integration into administrative work, creativity, and empowerment in all aspects of standards.

This understanding, in our perception, facilitates the development, improvement and innovation of art and design colleges that reflect quality concepts. This understanding also makes quality management processes a part of the internal unit of the faculty. This encourages the spread of quality culture and thus increases the conviction of working individuals to grow and make positive changes.

In higher education institutions, quality management generally refers to quality assurance. To ensure operations, direction, and guidance, as well as excellent performance that satisfies expectations and promotes continuous progress and development, one must practice quality assurance (Abbas, 2020; Anil & Satish, 2019; Mukhopadhyay, 2005).

Higher education institutions must now adhere to local quality standards to be successful. These standards are changing to meet the requirements of international accrediting bodies,

and while there are some variations due to accreditation bodies' privacy policies, all the standards have a similar and specific structure. What we want to make clear is that while these standards are normative, they are also flexible and open and cannot be seen as a list of responsibilities to be completed in a literal and quantitative manner alone. Standards should be understood as creativity in performance, renewal and consistency of process implementation.

This is attributable to a variety of factors, including the fact that senior management defines overall strategy plans, internal and external control processes and accountability items, and therefore quality files are handled from the top down.

However, because administrators and staff in higher education institutions are academics with a variety of specializations, they usually lack familiarity with the administrative curricula in quality management in addition to being engaged with their own research and teaching. Due to these and other factors, employees believe that quality management is the achievement of specified goals within a specific time limit. As a result, they believe that their role in faculties or smaller units is to do business and adhere to structural and list-based criteria.

This is supported by the fact that the accreditation bodies establish the standards while leaving it up to the academic institutions to put the standards into practice and maintain quality assurance. As a result, institutions must work to develop internal work systems at various levels, with a focus on how to allocate human resources to small work teams or internal committees. From this perspective, we believe it is also vital to focus on the internal movement of academic institutions and to guide experiences toward thinking patterns that realize the aims in a creative, sustainable and consistent manner with individuals' skills and abilities.

It should be emphasized that research on the concept of quality management in higher education is broad and extensive. This is because quality management involves processes of thinking, planning, operations, implementation, measurement, and evaluation as it progresses through successive administrative levels to reach decision-making (Badran, 2019; Harvey & Green, 1993; Ryan, 2015).

This illustrates that quality management is a set of interconnected processes that work together to achieve objectives and standards that fit within the institutional framework and deliver exceptional services that are committed to working plans within the institution, local and national work plans, as well as in line with international standards in a comprehensive and balanced manner. On the other hand, because the notion of design thinking is broken down into two distinct processes – the first being the process of thinking and the second being the process of design – the research on it is exceedingly complicated.

Both processes call on executive, structural, formative, applied and functional skills in addition to research, analytical, critical, and evaluative abilities, as well as oral, written and visual communication abilities. Despite its complexity, design thinking stands out for this attribute, which makes it a method that can be used in a variety of productive and cognitive fields (Brown, 2008; Hatchuel, 2001).

Design thinking generally starts with discovery, identification, and adaptability in finding answers, producing anything new and facing problems to execute ideas practically and to reach the desired goals and target values. We will use this mind map as our starting point in this paper to explore the relationships between design thinking and quality management in art and design colleges within higher education institutions, as well as to identify areas for

development and improvement by condensing thinking patterns and identifying points of convergence. This study adopts a qualitative research design to comprehensively investigate the integration of design thinking and quality management within higher education institutions, specifically focusing on art and design faculties. Qualitative research is deemed suitable for this exploratory study as it allows for an in-depth examination of complex phenomena and the generation of rich, context-specific insights (Iqbal Khan, 2022).

The research employs a multifaceted data collection strategy. Firstly, an extensive literature review is conducted, encompassing theories related to both design thinking and quality management, establishing a theoretical foundation for the study. Additionally, recent trends and overlapping topics in the field serve as a valuable source, guiding the research's direction and adding contextual depth.

Furthermore, the researcher, serving as the vice-dean for accreditation and quality affairs at the Faculty of Architecture and Design, Al-Ahliyya Amman University, Jordan, engages in direct monitoring and observation processes. This position allows for firsthand insights into the challenges and intricacies of implementing quality management in an academic setting.

The collected data undergoes rigorous qualitative analysis. Thematic analysis is employed to identify patterns and themes within the literature review and observational data (Lochmiller, 2021). The research strives to draw meaningful connections between the theories of design thinking and quality management, as well as identify areas of convergence and development within architecture and design colleges.

Given the researcher's administrative role, potential biases are acknowledged and addressed throughout the study. Reflexivity is maintained by regularly reflecting on personal assumptions and experiences, ensuring transparency and objectivity in the interpretation of findings.

To substantiate theoretical findings, applied and experimental research endeavors are integrated into the study. Practical testing of the integration of design thinking and quality management within the academic context involves collaborative workshops, focus groups, and iterative feedback loops with faculty members. These activities aim to bridge the gap between administrative thinking methods and creative design thinking systems (Lake et al., 2021).

The research adheres to ethical guidelines, ensuring the confidentiality and anonymity of participants. Informed consent is obtained from all individuals involved in workshops, or any data collection activities.

In conclusion, the combination of qualitative research methods, theoretical analysis, and practical experimentation forms a robust methodology for investigating the integration of design thinking and quality management in architecture and design faculties within higher education institutions. This approach facilitates a comprehensive exploration of the intricate relationship between these two cognitive domains, aiming to contribute to the enhancement of academic quality and creativity (Xiong et al., 2019).

The research is divided into two main parts; the first discusses the fundamental aspects of the concept of quality management in higher education, and the second discusses the fundamental aspects of the notion of design thinking. In both chapters, the theories and content are analysed for finding correlations that lead to the conclusions that are stated in the paper's final section.

2. Quality management: plan and tell

The second half of the 20th century's theoretical literature on quality management is characterized by epistemological, ontological, and practical considerations. The philosophical and intellectual framework that emphasizes the existence of man in the world and his effective ability to produce is abundant in the history of quality management, in addition to the existential framework. On the other hand, this theoretical framework provides a fertile practical basis for the implementation of concepts as well as the elucidation of processes and procedures that develop institutional performance at various levels.

The most recent discussions arguably revolve around the processes and methods of knowledge, as well as leadership and management methodologies within multiple frameworks and analytical fields; we will take a moment here to emphasize that we aim to link quality management in higher education institutions to the nature of disciplines and fields of knowledge. To put it another way, every faculty inside an academic institution must be connected to organizational, leadership, and administrative characteristics that support and work well with the institutional framework.

However, these factors also reflect the type of discipline the faculty offers. The attainment of quality standards within a cohesive system of successful and productive labour that produces the desired outcomes of academic programmes is known as quality management.

Quality in academic institutions is defined as reaching the highest levels of excellence, avoiding errors, minimizing defects, spreading a quality culture among individuals, reaping profits and advantages, striving for advancement, and constant alteration for the better (Harvey & Knight, 1996).

Quality is also defined as the added value that meets the institution's aims of performing its academic tasks in a way that develops faculty members, enhances student performance levels, and achieves distinction in academic programme outputs (Bogue, 1998; Koslowski III, 2006).

Quality assurance, on the other hand, is defined as "the policies, procedures, processes, and stages required to sustain the highest levels of excellence in a linear, consecutive system" (Woodhouse, 1999, p. 30). These definitions bring back the research title; when we concluded that accountability is the starting point and the turning point, what we meant by that is that quality depends on various measurement techniques to track performance indicators and assure the accomplishment of the academic institution's goals and objectives. These measuring methods are based on periodic reports, operational objectives, surveys and numerical data. In addition to the hierarchical and proper functioning of activities.

The theoretical literature can be used to outline the broad patterns on which quality management in higher education institutions rely, with the following trends being the most significant:

a) External quality monitoring. This method focuses on the procedures and systems of external assessment and audit of quality standards established locally by academic institutions or local and international accreditation bodies;
b) Assessment and outcomes movement – development of performance. This approach, which is both internal and external, is focused on the procedures for analyzing and reviewing errors to develop them;

c) Accountability and performance indicator reports. Inputs, outputs, documents, and performance indicators are the focus of this approach. Measurement and analysis methods are carried out, and numerical indicators are used to determine strengths and shortcomings;
d) Total quality management (TQM). This approach focuses on permanently, continuously, and sustainably enhancing performance and effectiveness through a strategy that connects activities, administrative levels and employees to meet quality criteria (Bogue, 1998; Harvey & Knight, 1996; Houston, 2008; Chung Sea Law, 2010).

TQM in higher education institutions is linked to educational processes and is more than just an organizational matter; rather, it is the practices that ensure quality assurance and achieve competencies at the administrative levels, education, governance, and scientific research (Badran, 2019, p. 23; Johnson Dei, 2019). As a result, arranging knowledge priorities according to importance and effectiveness rather than the quantity of knowledge we gather, and aggregate determines the priorities in higher education institutions quality (Ryan, 2015). For these practices achieving the required skills and knowledge. And therefore, these practices turn into a qualitative system built on qualitative axes and outputs that are described as plans with operational goals and performance indicators that ensure target values are met and give feedback for future performance level development (Blättler et al., 2010). Since "quality assurance approaches focus on processes that ensure continuity of development, this qualitative system interferes with education on its own" (Vardeman & Jobe, 2016, pp. 4–5).

Academic programmes are developed to meet the best possible standards for teaching, learning, scientific research, administration and meeting the needs of both students and society. Because real quality assurance management is the internal and actual management that is aligned with the overall institutional framework, this overlap specifically makes us wonder about the creativity in quality management inside the architecture and design faculties in higher education institutions.

Quality management operations in higher education institutions are specific and structured. At the same time, decision-making process

> "depends on accurate and clear information being used to assist the institution in growing and guiding the workforce as well as the next phases in more productive trends" (Brennan & Shah, 2000, p. 38).

This structure exists for a variety of purposes, including:

- The quality management systems follow established strategic plans;
- Both procedurally and chronologically, the quality systems operate sequentially;
- The quality work is carried out by the sequential committees and proceeds through several administrative levels;
- The assessment of quality depends on mental calculation and the accessibility of data that supports decision-making.

This demonstrates that quality management and assurance is a continuous, dynamic state, with a system of connections between plans, processes, employees, the environment and performance indicators that meet expectations and reach target values. By highlighting a crucial aspect, Deming (1989) stressed this dynamic movement: quality has diverse standards, and these standards will keep evolving constantly (Joiner & Reynard, 1994).

Returning to the theoretical literature, we discover that there are a variety of theories and all-encompassing approaches that seek to enhance performance and effectiveness in quality management and turn it into a continuous, comprehensive and sustainable management. All these theories are based on development and improvement as a key consideration when thinking about quality management.

Deming (1989) stressed the 14 points (Bagrova & Kruchinin, 2021; Metri, 2006) that create a high-quality performance using the holistic approach, win–win approach, and system of profound approach. He also defined the Deming cycle, which entails plan, do, check and act, as well as the seven deadly diseases. His ideas can be summed up as follows: the development of quality necessitates a full and ongoing commitment from senior management to develop values, a thorough comprehension of the concepts of quality management, its links and levels, a commitment to the empowerment of working individuals and the development of the knowledge and skills required to solve problems.

Contrarily, Juran and de Feo (2010), Tejaningrum (2019), and Tallentire et al. (2019) stressed the importance of developmental continuity and the use of quality circles to minimize mistakes at all levels in his trilogy: quality planning, quality control, and quality improvement.

According to some authors (Crosby, 2005; Yahiaoui et al., 2022), he presented a model based on two fundamental ideas: the first is quality management, which involves adhering to the specifications and guidelines established by the organization to prevent any mistakes or excesses while establishing a standard for performance. The second is to ensure development and improvement through fundamental components that place an emphasis on practical application and alter the workplace culture. In addition to explaining organizational behaviour ideas to everyone.

Based on the foregoing, we conclude that the idea of quality culture focuses heavily on the behaviour, effectiveness, and responsiveness of stakeholders rather than the operational processes of the quality system (Harvey, 2007). The fact that the culture of quality is a culture rooted in all employees in the institution, they are not just quality officers or those who work on it, but they are responsible for achieving and ensuring the highest quality standards (Crosby, 1979) serves as "further evidence of the indispensability of the human being as an active and crucial component in the management of quality assurance" (Harvey & Green, 1993, p. 16).

Despite the differences between the theories of Deming, Juran, and Philip B. Crosby and the various trends in quality management, the points of convergence are obvious and direct, namely the continuation of development and improvement, achieving the highest standards while ensuring their continuity, as well as focusing on the participatory, effective and organized work according to the sequential work teams at their different administrative levels.

This brings us to the conclusion that TQM consists of a collection of focused procedures and principles that are carried out on schedule and meet the highest requirements for all stakeholders. To ensure the implementation of the plans and the accomplishment of operational goals, this must be compatible with the plans that have been created and distributed in a hierarchical way. The idea of quality management is rational, distinct and hierarchical. This idea can be simplified into the following equation:

- TQM = operations + production;
- Wherein operations = knowledge + action + development;

- And production = the achievement of target values;
- This is controlled by the frame of time = past + present + future.

In other words, returning to the above title *plan and tell*, the operations are based first on existing knowledge, and here are the regulations, instructions, legislation, standards, procedures, and specific plans. Implementation cannot begin without referring to the necessary assets and references. They were formerly (in the past) created by professionals. The second phase is to develop or run an organization that satisfies operational goals and adheres to standards.

This process demands collaboration and involvement from all employees since it is regarded as a complicated and entangled stage due to the multitude of levels of work in it, and everything available during work (present) is considered at this stage. The development is the phase in which performance indicators are monitored to work on developing and enhancing work in the subsequent phases and plans, and it is regarded in the future. The second part in the equation is production, which is the ultimate result that meets all the objectives outlined in the strategic and operational plans.

As a result, production must match the institution's primary aims as well as the specialized criteria, whether local or worldwide. By gaining a deeper understanding of TQM, we are better able to comprehend holistic, operational and interactive systems of thought, which opens the door to the potential of creating new patterns of thinking through design thinking.

3. Design thinking: show, do not tell

The notion of design thinking is not a new concept but has been around for almost half a century at art and design concepts (Dym et al., 2005). It was initially used by Rowe (1995), especially in the second quarter of the 20th century, with the intention of developing research techniques by utilizing design approaches. However, the phrase swiftly evolved after that to be viewed as efforts. An empirical knowledge, which influenced the term's creation and widespread use in numerous, intricate domains (including management, education, economics, psychology, medicine, and arts).

Given that design thinking is the concept of planning, management, innovation, and action, and it can also be viewed as the future on the basis that it is the realization of everything that is new (Cross, 1982), this term has provided a general understanding of human reality as well as the processes of perception and thinking (Cross et al., 1997, p. 1).

However, the notion of design thinking is also regarded as perplexing due to its relationship with creativity and innovation. This ambiguity has been substantially reflected in academic literature, in part because design thinking is derived from the word design, which is defined as the sum of actions that "mark out, point out, describe, design, contrive" (Hokanson & Gibbons, 2014, p. 6).

It is also defined as a systematic process in which material is generally represented in a data- and information-driven model, resulting in problem resolution in a specific domain (Tracey & Boling, 2014). Therefore, design is a collection of actions and processes defined within a certain content or context, and design may be regarded in two ways: "the first trend is the process of addressing issues rationally, and the second trend is the practical and applied approach to design" (Hokanson & Gibbons, 2014, p. 4).

If we wish to give a more thorough definition of design, we could state that it is flash or rapid effective thinking in both contexts (Cross, 2011; Dorst, 2011) and that "if it is a noun, it signifies production, and if it is a verb, it means operations" (Lawson, 2006, p. 3). When we take a closer look at this, we find that design is a process divided into two parts: the first is the act of thinking and the second is the act of applying and implementing. Because it combines several diverse aspects in one frame, design thinking can be seen as a swift and unique act. It blends the aesthetic and practical aspects, depicts shape and substance and communicates certain concepts. It responds to the user experience and handles the recipient's input. As a result, the difficulty in the design process is how to solve problems and represent ideas in a real and visible form to serve a particular audience. The processes of research, analysis, synthesis, critique, evaluation, as well as the phases of planning, application, implementation, measurement, development, and continual improvement, all contribute to the high complexity level of this process.

Design processes intersect procedurally rather than linearly; that is, the processes are sequential, interconnected, and go through different stages.

Looking at Figure 1, we recognize that the design process starts with observing the problem, defining it, building the basic concept and models, and then testing and developing the models. All operations must be characterized by flexibility, readiness, preparedness, speed, and constant presence, as these steps meet, coordinate, follow, and cascade among themselves.

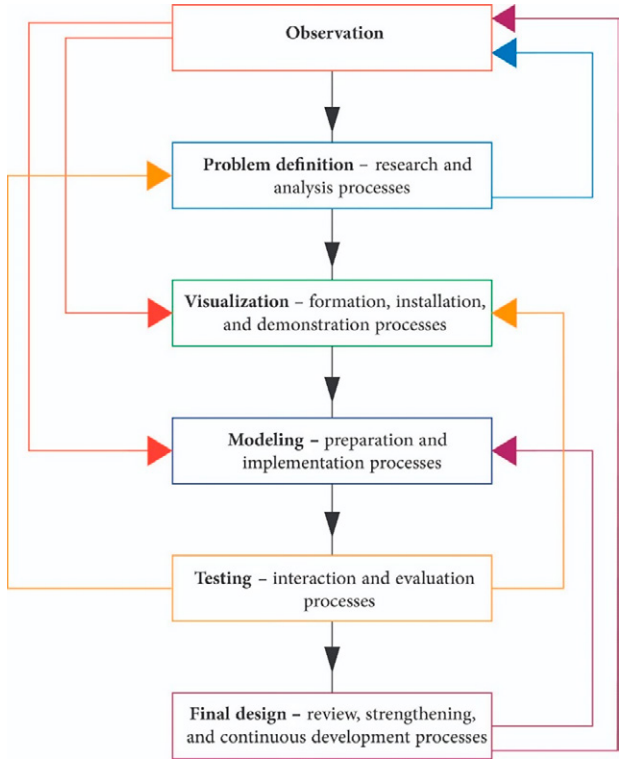

Figure 1. Design processes (source: created by author)

According to Figure 1, the design process is both design thinking and design execution skill. The design thinking skill is one that we all have; it is a possibility that exists in people, but it grows through problem-solving practice. This talent is essential to human survival. Humans can reason instinctively, recognize differences and symmetries and approach repetitions. They can also analyze symbols and signals and have a significant ability to express themselves symbolically, emotionally, artistically, and visually. Concerning the skill of implementation and application, it necessitates specialized technical, technical, and technological training, and it is worked on and developed in an academic and professional setting, with the requirement to stay current with design innovations.

Many design thinking axes have been identified in the theoretical literature, and they are described in terms of sensory and mental processes. In general, design thinking patterns can be summarized as follows:

- Design thinking is logical, conclusive, and extrapolatory reasoning (Cross, 2006; Dunne & Martin, 2006);
- Design thinking seeks to strike a balance between divergent and convergent thought (Lawson, 2006);
- Design thinking seeks out new opportunities rather than settling for old ones (Boland Jr. & Collopy, 2004);
- Design thinking stands for collaborative thinking (Brown, 2008; Dunne & Martin, 2006);
- Design thinking involves the user in the thinking process (Bate & Robert, 2007);
- Design thinking is project-based action (Dunne & Martin, 2006).
- Design thinking is concerned with small workgroups (Kelley & Littman, 2001).

This discussion brings us the following question: how can design thinking lead to creativity in TQM in architecture and design faculties?

As it is a requirement for achieving values and developing managerial thought at the level of the internal unit, answering this question requires a focus on the methods and techniques of design thinking and their effective and interactive application. This calls for an under-standing of the fundamental design thinking principles.

The most essential of these concepts is that the design thinking is human-centric, emphasizing the human being as the source of inspiration, direction, and progress in all issues and challenges. This describes the remaining subprinciples: (a) design thinking entails a complete and comprehensive understanding of the processes, which extends beyond analysis and criticism to include visualization, evaluation, and the identification of potential for development and improvement; (b) *show, do not tell* is the motto of design thinking, which stands for the principle that progress must always be made to be effective. It underlines the necessity of discussing and developing an actual and realistic vision. That brings us to the final principle; (c) design thinking is biased to prioritize acting first. This gives design thinking an essential approach which is "a reflection of work, a reflection in work, and a reflection of work. This continues through an integrated cycle" (Hokanson & Gibbons, 2014, p. 1).

Holistic, executive, and interactive systems of thinking could also work in this way. Design thinking is a disciplined method by which we find new things that did not exist (Fisher, 2013). The following steps can serve as an example of this process, which is dependent on the phases of formation, re-presentation, movement, evaluation, and management (Lawson & Dorst, 2009):

- Describe the issue, pinpoint it and present it verbally or visually using sketches and supporting arguments;
- Representing the issue by giving it a visual component and repeatedly exploring ideas;
- Executing the design and development of the idea while it is being implemented, corresponding with the client, the work team, and the final implementation bodies, and gathering feedback;
- Verify that the issue has been handled following consultation with all relevant parties;
- Initial application and assessment;
- Operational management and final implementation.

To uncover the potential connections in the topic, the aforementioned information can be used to create a simplified equation that expresses the idea of design thinking:

- Design thinking = operations + production;
- Operations = what is + what if;
- Productions = what is great + what works.

The fundamental variables in the equation are the same ones we are familiar with from overall quality management, but the way we think about these variables and how we put them into practice differs each time, leading to new outcomes. To properly comprehend any problem that is before us, understanding the processes in this equation requires that we evaluate and deconstruct all that is in front of us.

Additionally, the question *what if…?* searches for all potential answers, repeatedly rebuilds the problem, and even suggests new participatory implementation strategies to guarantee the attainment of the goals. This brings us to the second aspect, production, which is distinguished in design thinking by the way it evolves and advances throughout the many stages of work. The question *what works?* is a technical, executive and applied question in which all parties involved collaborate to provide the best outcomes that accomplish excellence and have the lowest possible mistake rate. The prototype is created before the query we are looking for is posed by the question *what is great?*. This provides an opportunity for dialogue with leading components and gathers their input as the model is developed and presented.

4. Discussion

The integration of design thinking and quality management within architecture and design faculties in higher education institutions signifies a transformative shift aimed at nurturing innovation and elevating academic standards (Matthews & Wrigley, 2017). Through collaborative workshops, iterative feedback loops, and innovative performance metrics, this integration endeavors to bridge the gap between creative design thinking and administrative protocols. By implementing open mechanisms, faculty members gain flexibility to apply design thinking principles at their own readiness level, thereby addressing potential challenges such as resistance and resource allocation (Kumar & Sharma, 2023; Luo & Kim, 2018). A comparative analysis of institutions adopting design thinking methodologies in quality management provides valuable insights into challenges, intersections, and long-term impacts (Coco et al., 2020; Carlgren & BenMahmoud-Jouini, 2022; Laitinen, 2022), contributing to a dynamic and innovative academic environment that fosters creativity and positively impacts long-term action plans.

The alignment of design thinking principles with quality management processes holds significant implications for academic quality and creativity. This integration facilitates the cultivation of critical thinking skills, collaboration, and interdisciplinary approaches essential for addressing complex challenges in today's rapidly changing world. By incorporating design thinking methodologies into curriculum development and instructional strategies, educators can engage students in experiential learning experiences that foster creativity, innovation, and critical thinking, ultimately enhancing student outcomes and satisfaction.

However, the integration of design thinking and quality management is not without its challenges. Faculty resistance, resource allocation, time constraints, cultural shifts, and alignment with accreditation standards pose significant hurdles. Overcoming these challenges requires fostering a supportive culture that encourages risk-taking, experimentation, and continuous improvement. Moreover, careful planning and coordination are necessary to align the integration with accreditation standards and institutional norms while promoting innovation and creativity.

Moving forward, there are several avenues for further exploration and application of the integration of design thinking and quality management in art and design faculties. Research efforts should focus on evaluating different integration models and strategies to improve academic quality and foster creativity. Ongoing professional development and training programmes should be implemented to support faculty members in integrating design thinking principles into their teaching and research practices. Collaboration between academic departments, industry partners, and other stakeholders can facilitate the exchange of ideas and best practices, leading to continuous improvement and innovation in art and design education.

In conclusion, the integration of design thinking and quality management represents a promising approach to fostering innovation and enhancing academic quality in art and design faculties within higher education institutions. Despite the challenges involved, the potential benefits of this integration are significant. By addressing challenges, fostering cultural shifts, and promoting collaboration and experimentation, institutions can realize the full potential of integrating design thinking and quality management in architecture and design education.

5. Results and conclusions

This research conducted a comprehensive exploration of the integration of design thinking and quality management within higher education institutions, with a specific focus on architecture and design faculties. Through qualitative analysis and theoretical examination, several key findings emerged regarding the relationship between design thinking and quality management and their implications for academic quality and creativity.

The study elucidated the fundamental aspects of quality management in higher education institutions, highlighting its role in ensuring excellence, minimizing defects, and fostering a culture of continuous improvement. Quality assurance processes were examined, emphasizing strategic planning, performance measurement, and accountability mechanisms. The dynamic nature of quality management, characterized by continuous development and alignment with institutional goals, was underscored.

A review of theoretical literature revealed diverse perspectives on quality management, ranging from holistic approaches to continuous improvement models. Despite variations in

theoretical frameworks, there was a clear convergence on the importance of development, improvement, and stakeholder engagement in quality management practices. The study provided a theoretical foundation for further exploration of quality management's integration with design thinking.

The research identified areas of synergy between design thinking and quality management within higher education institutions, proposing alignment of design thinking principles with quality management processes to foster innovation, creativity, and effective problem-solving. A conceptual equation was proposed to simplify the understanding of TQM, emphasizing knowledge, action, development, and production in achieving operational goals and quality standards.

In addition to theoretical analysis, practical experimentation validated the integration of design thinking and quality management. Collaborative workshops, focus groups, and iterative feedback loops bridged the gap between administrative and creative thinking methods. Through applied research endeavors, the study aimed to enhance academic quality and creativity by promoting a culture of innovation and continuous improvement.

Ethical guidelines were followed throughout data collection, ensuring confidentiality, anonymity, and informed consent. Reflexivity was maintained by critically reflecting on personal assumptions and experiences, enhancing transparency and objectivity in interpreting findings. The study demonstrated a commitment to ethical research practices and reflexivity in navigating potential biases.

Overall, the findings underscored the intricate relationship between design thinking and quality management in architecture and design faculties within higher education institutions. By elucidating theoretical perspectives, exploring practical implications, and adhering to ethical principles, the research contributed to the advancement of academic quality and creativity. The integration of design thinking and quality management presents a promising avenue for fostering innovation and enhancing academic quality, with potential to positively impact long-term action plans and drive continuous improvement in academic settings.

Moreover, TQM and design thinking share fundamental similarities, such as the emphasis on constant performance improvement and the importance of human involvement. Conducting further research on these analogies will provide practical guidelines for creative processes and administrative development within higher education institutions. Additionally, initiating a comparative analysis of institutions or academic programmes that have adopted design thinking methodologies in quality management will help identify intersections, challenges, and monitor the impact on long-term action plans.

References

Abbas, J. (2020). Impact of total quality management on corporate green performance through the mediating role of corporate social responsibility. *Journal of Cleaner Production*, *242*. https://doi.org/10.1016/j.jclepro.2019.118458

Anil, A. P., & Satish, K. P. (2019). TQM practices and its performance effects – an integrated model. *International Journal of Quality and Reliability Management*, *36*(8), 1318–1344. https://doi.org/10.1108/IJQRM-10-2018-0266

Badran, A. (Chief Ed.). (2019). *Major challenges facing higher education in the Arab World*: *Quality assurance and relevance*. Springer Nature Switzerland. https://doi.org/10.1007/978-3-030-03774-1

Bagrova, E., & Kruchinin, S. (2021). Deming's 14 points in modern higher education. *SHS Web of Conferences*, *94*. https://doi.org/10.1051/shsconf/20219402002

Bate, P., & Robert, G. (2007). *Bringing user experience to healthcare improvement*: *The concepts*, *methods and practices of experience-based design*. Radcliffe Publishing.

Blättler, A., Bollaert, L., Curvale, B., Harvey, L., Helle, E., Toft Jensen, H., Loukkola, T., Michalk, B., & Bak Nielsen, K. (Eds.). (2010). *Creativity and Diversity*: *Challenges for Quality Assurance Beyond 2010*: *A Selection of Papers from the 4th European Quality Assurance Forum*, Copenhagen, Denmark. European University Association.

Bogue, E. G. (1998). Quality assurance in higher education: The evolution of systems and design ideals. *New Directions for Institutional Research*, *99*, 7–18. https://doi.org/10.1002/ir.9901

Boland Jr., R. J., & Collopy, F. (2004). Design matters for management. In R. J. Boland Jr. & F. Collopy (Eds.), *Managing as designing* (pp. 3–18). Stanford University Press. https://doi.org/10.1515/9780804767439-003

Brennan, J., & Shah, T. (2000). *Managing quality in higher education*: *An international perspective on institutional assessment and change*. Open University Press.

Brown, T. (2008). Design thinking. *Harvard Business Review*. https://hbr.org/2008/06/design-thinking

Carlgren, L., & BenMahmoud-Jouini, S. (2022). When cultures collide: What can we learn from frictions in the implementation of design thinking? *Journal of Product Innovation Management*, *39*(1), 44–65. https://doi.org/10.1111/jpim.12603

Chung Sea Law, D. (2010). Quality assurance in post-secondary education: Some common approaches. *Quality Assurance in Education*, *18*(1), 64–77. https://doi.org/10.1108/09684881011016007

Coco, N., Calcagno, M., & Lusiani, M. (2020). Struggles as triggers in a design-thinking journey. *Creativity and Innovation Management*, *29*(S1), 103–115. https://doi.org/10.1111/caim.12384

Crosby, Ph. B. (2005). Crosby's 14 steps to improvement. *Quality Progress*, *38*(12), 60–64.

Crosby, Ph. B. (1979). *Quality Is free*: *The art of making quality certain*. McGraw-Hill Book Company.

Cross, N. (2011). *Design thinking*: *Understanding how designers think and work*. BERG. https://doi.org/10.5040/9781474293884

Cross, N. (1982). Designerly ways of knowing. *Design Studies*, *3*(4), 221–227. https://doi.org/10.1016/0142-694X(82)90040-0

Cross, N. (2006). *Designerly ways of knowing*. Springer-Verlag London Limited.

Cross, N., Christiaans, H., & Dorst, K. (Eds.). (1997). *Analysing design activity*. Wiley.

Deming, W. E. (1989). *Out of the crisis*. Massachusetts Institute of Technology, Center for Advanced Engineering Study.

Dorst, K. (2011). The core of "design thinking" and its application. *Design Studies*, *32*(6), 521–532. https://doi.org/10.1016/j.destud.2011.07.006

Dunne, D., & Martin, R. (2006). Design thinking and how it will change management education: An interview and discussion. *Academy of Management Learning and Education*, *5*(4), 512–523. https://doi.org/10.5465/amle.2006.23473212

Dym, C. L., Agogino, A. M., Eris, O., Frey, D. D., & Leifer, L. J. (2005). Engineering design thinking, teaching, and learning. *The Research Journal for Engineering Education*, *94*(1), 103–120. https://doi.org/10.1002/j.2168-9830.2005.tb00832.x

Fisher, Th. (2013). *Designing to avoid disaster*: *Thinking*: *The nature of fracture-critical design*. Routledge.

Harvey, L. (2007). Epistemology of quality. *Perspectives in Education*, *25*(3), 1–13.

Harvey, L., & Green, D. (1993). Defining quality. *Assessment and Evaluation in Higher Education*, *18*(1), 9–34. https://doi.org/10.1080/0260293930180102

Harvey, L., & Knight, P. T. (1996). *Transforming higher education*. The Society for Research into Higher Education & Open University Press.

Hatchuel, A. (2001). Towards design theory and expandable rationality: The unfinished program of Herbert Simon. *Journal of Management and Governance*, *5*, 260–273. https://doi.org/10.1023/A:1014044305704

Hokanson, B., & Gibbons, A. (Eds.). (2014). *Educational communications and technology*: *Issues and innovations*. *Design in educational technology*: *Design thinking*, *design process*, *and the design studio*. Springer. https://doi.org/10.1007/978-3-319-00927-8

Houston, D. (2008). Rethinking quality and improvement in higher education. *Quality Assurance in Education*, *16*(1), 61–79. https://doi.org/10.1108/09684880810848413

Iqbal Khan, N. (2022). Case study as a method of qualitative research. In Information Resources Management Association (Ed.), *Research Anthology on Innovative Research Methodologies and Utilization across Multiple Disciplines* (pp. 452–472). IGI Global. https://doi.org/10.4018/978-1-6684-3881-7.ch023

Johnson Dei, D.-G. (2019). Assessing quality assurance practices in institutions of higher learnings. *International Journal of Learning, Teaching and Educational Research*, *18*(12), 30–45. https://doi.org/10.26803/ijlter.18.12.3

Joiner, B. L., & Reynard, S. (1994). *Fourth generation management*: *The new business consciousness*. McGraw Hill.

Juran, J. M., & Feo, de J. A. (2010). *Juran's quality handbook*: *The complete guide to performance excellence*. McGraw-Hill.

Kelley, T., & Littman, J. (2001). *The art of innovation*: *Lessons in creativity from* IDEO, *America's leading design firm*. A Currency Book.

Koslowski III, F. A. (2006). Quality and assessment in context: A brief review. *Quality Assurance in Education*, *14*(3), 277–288. https://doi.org/10.1108/09684880610678586

Kumar, H., & Sharma, G. (2023). Grassroots innovations and sustainable energy use in urban contexts: Case studies from India. *Journal of Science and Technology Policy Management*, *14*(3), 529–546. https://doi.org/10.1108/JSTPM-03-2021-0042

Laitinen, A. (2022). Normative powers, agency, and time. In C. Bagnoli (Ed.), *Time in action*: *The temporal structure of rational agency and practical thought* (pp. 52–72). Routledge. https://doi.org/10.4324/9780429259845-5

Lake, D., Flannery, K., & Kearns, M. (2021). A cross-disciplines and cross-sector mixed-methods examination of design thinking practices and outcome. *Innovative Higher Education*, *46*, 337–356. https://doi.org/10.1007/s10755-020-09539-1

Lawson, B. (2006). *How designers think*: *The design process demystified*. Elsevier. https://doi.org/10.4324/9780080454979

Lawson, B., & Dorst, K. (2009). *Design expertise*. Routledge.

Lochmiller, Ch. R. (2021). Conducting thematic analysis with qualitative data. *The Qualitative Report*, *26*(6), 2029–2044. https://doi.org/10.46743/2160-3715/2021.5008

Luo, X., & Kim, D. (2018). A top-down approach to designing the computerized adaptive multistage test. *Journal of Educational Measurement*, *55*(2), 243–263. https://doi.org/10.1111/jedm.12174

Matthews, J., & Wrigley, C. (2017). Design and design thinking in business and management higher education. *Journal of Learning Design*, *10*(1), 41–54. https://doi.org/10.5204/jld.v9i3.294

Metri, B. A. (2006). Total quality transportation through Deming's 14 points. *Journal of Public Transportation*, *9*(4), 35–46. https://doi.org/10.5038/2375-0901.9.4.3

Mukhopadhyay, M. (2005). *Total quality management in education*. SAGE Publications.

Rowe, P. G. (1995). *Design thinking*. The MIT Press.

Ryan, P. (2015). Quality assurance in higher education: A review of literature. *Higher Learning Research Communications*, *5*(4). https://doi.org/10.18870/hlrc.v5i4.257

Tallentire, V. R., Harley, C. A., & Watson, S. (2019). Quality planning for impactful improvement: A mixed methods review. *BMJ Open Quality*, *8*. https://doi.org/10.1136/bmjoq-2019-000724

Tejaningrum, A. (2019). Implementation the trilogy Juran in SMEs business case study in Indonesia. *IOP Conference Series*: *Materials Science and Engineering*, *506*. https://doi.org/10.1088/1757-899X/506/1/012031

Tracey, M. W., & Boling, E. (2014). Preparing instructional designers: Traditional and emerging perspectives. In J. M. Spector, M. D. Merrill, J. Elen, & M. J. Bishop (Eds.), *Handbook of research on educational communications and technology* (pp. 653–660). Springer Science+Business Media. https://doi.org/10.1007/978-1-4614-3185-5_52

Vardeman, S. B., & Jobe, J. M. (2016). *Springer texts in statistics*. *Statistical methods for quality assurance*: *Basics*, *measurement*, *control*, *capability*, *and improvement*. Springer. https://doi.org/10.1007/978-0-387-79106-7

Woodhouse, D. (1999). Quality and quality assurance. In *Quality and internationalisation in higher education* (pp. 29–44). OECD Publications.

Xiong, L., Teng, Ch.-L., Li, Y.-Q., Lee, Y.-Z., Zhu, B.-W., & Liu, K. (2019). A qualitative-quantitative evaluation model for systematical improving the creativity of students' design scheme. *Sustainability*, *11*(10). https://doi.org/10.3390/su11102792

Yahiaoui, F., Chergui, K., Aissaoui, N., Brika, S. K. M., Lamari, I. A., Musa, A. A., & Almezher, M. (2022). The impacts of total quality management practices in Algerian higher education institutions. *Frontiers in Psychology*, *13*. https://doi.org/10.3389/fpsyg.2022.874209