

Patterns emerging from the TQM paradigm in relation to the 21st century complex context within TQM journal

Patterns
emerging from
the TQM
paradigm

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Abstract

Purpose – The purpose of this research is to explore the deployment of the total quality management (TQM) paradigm in the *TQM Journal* in relation to the context of the 21st century. The study builds on the theoretical framework of the four quality paradigms that together compose TQM. The four paradigms differ in their effectiveness based on the context in which they are used. In a complex context, one would expect the reflective and the emergence paradigm to flourish. The *TQM Journal* is one of the leading scientific journals on TQM. If the assumption that the reflective and emergent paradigm would flourish in a complex environment is correct, one will see that represented in the past five years of scientific research in that magazine.

Design/methodology/approach – The *TQM Journal* articles of the past five years from January 2016 till January 2021 have been chosen as the scope of an exploratory review. The author assessed the title and abstract of all articles based on the characteristics of the four quality paradigms, as described in the theoretical framework. If the title and abstract did not provide enough data to take the decision for the assessment, the whole article has been taken into account. The results have been collated, summarized and reported. Based on the results, the author explores the possible patterns.

Findings – In total, 283 articles from 2016 to 2021 (from Volume 28, Issue 1 to Volume 33, Issue 1) were included in this study. In total, 45 were read fully to be able to characterize the article. Most of the studies relate to the tertiary (33.3%) and secondary (27.9%) sectors. Healthcare was the sector in 32 of the cases (11.3%). Most studies have been conducted in Europe ($n = 82$, 28.9%) and Asia ($n = 58$, 20.5%). Within Europe, Italy was the most prolific country with, respectively, 25 (30.8%) of the articles. The USA and Canada only had five articles in these five years (1.8%). Many articles did not specify the region. More than half of the articles (52.4%) worked with surveys, questionnaires or other methods to involve the customer in the research; 16 articles (5.6%) used experts in the field through expert panels and such to collect data from. In total, 107 articles (37.8%) did involve no other stakeholders than the researchers themselves. Eight studies (2.8%) used action research or co-design methodology to create optimal stakeholder participation. Based on the data, four patterns can be discovered: the context sensitivity of the articles, reflexivity, coping with uncertainty and co-creation.

Research limitations/implications – It is acknowledged that the articles in the study were published in just one scientific journal. One can expect that this will be represented in other journals on TQM. Still, it would be interesting to conduct a follow-up study in other journals on TQM and compare the results. The research is done by one subjective researcher.

Practical implications – Research on TQM should take the complexity of the context into account. For that purpose, researchers should focus more on the emergence paradigm within TQM.

Originality/value – This study is the first to investigate TQM as a holistic paradigm, including the empirical, reflective, reference and emergence paradigm in TQM research.

Keywords Total quality management, Quality concepts, Change management

Paper type Conceptual paper

Introduction

There are many definitions of total quality management (e.g. Miller, 1996; Krüger, 1999). The term total quality management (TQM) is, according to the American Society for Quality (ASQ) website, coined by the Naval Air Systems Command to describe its Japanese-style management approach to quality improvement. The ASQ defines TQM as “a management approach to long-term success through customer satisfaction. In a TQM effort, all members of



an organization participate in improving processes, products, services, and the culture in which they work” [1].

TQM has been taught and put into practice since the 1950s of the past century by people like Deming, Juran, Feigenbaum and Crosby. Some scientists state that the interest in topics like TQM was high in the mid-1990s, after which interest appears to have decreased. Publications described the failure of TQM (Harari, 1993; Brown *et al.*, 1994; Holoviak, 1995; Walsch, 1995; Swartz, 1996). However, the interest in topics like kaizen and continuous improvement regenerated post-2010 (Carnerud *et al.*, 2018).

Here, the definition of Van Kemenade and Hardjono (2019) is adopted, who look at TQM through the lenses of four quality paradigms. The authors strive for epistemic fluency (Markauskaite and Goodyear, 2016) between them. TQM for them is defined as *the capacity to understand, switch between, and combine control, continuous improvement, professionalism and innovation*.

This study explores the use of the four quality paradigms in TQM research, more specifically in five years of the *TQM Journal* from January 2016 running until January 2021. The *TQM Journal* and its predecessor *TQM Magazine* have a history since 1988, with publishing research on TQM and provide relevant studies for this research since TQM is the topic of this study. It is now the leading journal on this topic.

In the past, more literature reviews have been conducted on TQM. Sila and Ebrahimpour (2002) investigated the TQM survey-based research published between 1989 and 2000. Ghafoor *et al.* (2020) present a bibliometric and thematic review of journal papers specifically related to business excellence frameworks (BEFs) that are used for national Business Excellence awards. They included TQM in their search. Metaxas and Koulouriotis (2019) conducted a descriptive analysis of literature on measuring Business Excellence, including TQM, BE models, SERVQUAL and other quality-related models, compiling a total of 139 papers from 39 refereed journals from the period 1990–2016. However, it is evident that no other literature review had set such a specific scope of identifying the four quality paradigms of TQM in the *TQM Journal*.

The four quality paradigms, which together compose TQM, differ in values, background assumptions and tools. They differ in their effectiveness, related to the context. Popa *et al.* (2015) describe the necessity of connecting values to research, especially in times of transdisciplinary approaches of social-relevant issues. This also relates to the development of TQM. “The importance of a reflexive questioning of values, background assumptions and normative orientations of various approaches to sustainability is not sufficiently acknowledged” (Popa *et al.*, 2015, p. 46).

The purpose of this research is to explore the deployment of the TQM paradigm in the *TQM Journal* in relation to the context of the 21st century. The research question is to explore which paradigms are represented in the scientific articles within the *TQM Journal* of the past five years, from 2016 until 2021.

The article starts with a short explanation of the theoretical framework of the four paradigms, geared toward (TQM) research and the relation of the paradigms with different contexts.

Theoretical framework

To characterize the research in TQM, it is necessary to have a deeper understanding of paradigms as a theoretical concept. Kuhn (1962) defined a research paradigm as a set of common beliefs and agreements shared between scientists about how problems should be understood and addressed. The choice for a paradigm is based on the values underpinning these beliefs. A paradigm shift occurs when based on contextual needs, the viewpoints and values of a scientist change, which leads to a reinterpretation of existing data (Goodwin, 2019).

Many researchers have searched for scientific paradigms (Guba and Lincoln, 1994; Rossman and Rallis, 1998; Lincoln and Guba, 2000).

This research on the TQM paradigm stands on the shoulders of others and is the outcome of long-lasting research. The quality paradigms in this article emerged from discussions in the Dutch Academy for Quality initiated earlier by Huub Vinkenburg (see, e.g. Vinkenburg, 2006, 2010). Van Kemenade (2014a) adds the importance of context to the discussion; Van Kemenade (2014b) questions the Deming cycle as not being applicable to every context.

In 2019, Van Kemenade and Hardjono published an article in the *TQM Journal* under the title *Twenty-first-century Total Quality Management: The Emergence Paradigm*, which was awarded as an outstanding paper in 2019. In follow-up research, Van Kemenade (2019) executed a concept analysis of emergence. The concept of the four quality paradigms was used for the analysis of scientific literature on integrated care (Van Kemenade *et al.*, 2021). Using the four quality paradigms provides four lenses to look at the current situation in the field of research in general and especially in TQM and provides a common ground for discussion on what TQM is. The four paradigms are described here in more detail.

The four quality paradigms

There are four quality paradigms. Each is described here by its definition on quality, the values, the main objective and a metaphor is given. The purpose, the research philosophy, the methods used and objects in research are described as well as a musical example and a visualization.

In the empirical paradigm, quality is defined as conformance to requirements (Crosby, 1979). Its values are accountability and accuracy. The main objective is to *control* and measure reality and guide knowledge production to contribute to the body of evidence. A metaphor for this paradigm is the army. The purpose of the research in this paradigm is explanation, prediction and control (Guba and Lincoln, 1994). The research philosophy of positivism fits into this paradigm. Methods used are, e.g. statistical data analysis and random control trials (RCT). Objects of study are assessment of (measurement) tools, gathering data. You can recognize the empirical paradigm in modern electronic dance music and the boundaries of its beats per minute. It is visualized in Figure 1.

In the reflective paradigm, quality is an event (Pirsig, 1974). Its values are *professionalism* and wisdom. The professional or group of professionals is the expert who reflects on the quality of care. A metaphor for this paradigm is Rodin's sculpture of the Thinker.



Figure 1.
Empirical paradigm

TQM

The purpose of the research in this paradigm is critique and transformation (Guba and Lincoln, 1994). The research philosophy is subjectivism. Concept analysis, theory building, definitions are in line with this paradigm. Expert involvement, editorials, conferences, discussion forums are methods used. Any quality topic can be the object of reflexivity and study. In music, this paradigm fits reflections on different variations of the same piece – e.g. in the *Gymnopédies* of Satie by Aldo Ciccolini and Reinbert de Leeuw. It is represented by the mind in Figure 2.

In the reference paradigm, quality is defined as fitness for use (Juran *et al.*, 1974). Its values are success and *improvement*. It uses models, frameworks, protocols or guidelines to develop and evaluate quality. A metaphor for this paradigm is a robot or artificial intelligence. The purpose of the research in this paradigm is understanding and reconstruction (Guba and Lincoln, 1994). The research philosophy is constructivism or interpretivism. Methods used are mixed methods, systems theory. Objects of study are award systems like European Foundation for Quality Management Award (EFQM), the Malcolm Baldrige National Quality Award (MBNQA) and evaluation of strategies. Developing models and systems theory are popular in this paradigm. You can recognize it in the choirs singing in Greek Tragedy, according to the model of mandatory conventions. It is visualized by thumbs up in Figure 3.



Figure 2.
Reflective paradigm



Figure 3.
Reference paradigm

In the emergence paradigm, quality is dynamic and unpredictable (Pirsig, 1991). Its values are flexibility and willingness to change. A collective of stakeholders, including the patient or citizen, explore and co-create new solutions. A metaphor for this paradigm is a jazz combo. The purpose of the research in this paradigm is to create a novel practice, taking into account the context of the real world at a local level (Guba and Lincoln, 1994). The research philosophy is (critical) pragmatism. Methods used are from complexity theory, realist evaluation, participatory research. Co-creation and co-design are favorite. Objects of study are complex adaptive systems, ecosystems, radical *innovation*. Innovation is defined as “production or adoption, assimilation, and exploitation of a value-added novelty in economic and social spheres; renewal and enlargement of products, services, and markets; development of new methods of production; and establishment of new management systems. It is both a process and an outcome” (Crossan and Apaydin, 2010, p. 1155). In music, you recognize the emergence paradigm in the improvisations of a modern jazz combo. It is often represented by the flexibility of the flock of sparrows, which together create beautiful movements in the air (Figure 4).

In Table 1, the most essential characteristics of each paradigm are presented.

In Van Kemenade and Hardjono (2019), TQM is proposed as the understanding, combining and switching between the four quality paradigms. Markauskaite and Goodyear (2016) call this epistemic fluency. TQM is just that: the combination of the four quality management paradigms; the empirical, the reflective, the reference and the emergence paradigm. The framework of Van Kemenade and Hardjono leads to a definition that TQM is *the capacity to understand, switch between and combine control, professionalism, continuous improvement and innovation*. For that purpose, respectively data, quality issues, models and complex adaptive systems can be studied (Figure 5).

Context sensitivity

The four paradigms mentioned above are equal; one is not more useful than the other.

What is needed at a certain moment in time, at a certain place depends on the context (Van Kemenade, 2014a, 2015). Pettigrew *et al.* (1992) define context as “the “why” and “when” of change and concerns itself both with influence from the outer context (such as the prevailing economic, social, political environment) and influences internal to the organization under study (for example, its resources, capabilities, structure, culture, and politics) (p. 27). Although Deming (1951) and Crosby (1979) propagated TQM as a universally applicable methodology, effective quality management will differ depending on the context of an organization (see, e.g. for healthcare Ashton, 2015; Evans *et al.*, 2016). The idea that context is



Figure 4.
Emergence paradigm

TQM

	Geared to research	Empirical	Reflective	Reference	Emergence
	Quality	Conformance to requirements	Quality is an event	Quality is fitness for use	Quality is dynamic
	Values	Accountability and accuracy	Professionalism and wisdom	Success and improvement	Flexibility and willingness to change
	Metaphor Purpose	Army <i>Control</i> , explanation, prediction, data analysis, fundamental science	Thinker <i>Professionalism</i> , critique and transformation, theory building, discussing definitions, concept analysis	<i>Continuous improvement</i> Understanding and reconstruction, using a model like lean, Six Sigma, EFQM, ISO; the customer, systems	Jazz combo <i>The emergence of innovation</i> , creating a collective culture, context sensitivity
	Philosophy	Positivism (knowledge is information derived from sensory experience and interpreted through reason and logic)	Subjectivism (knowledge has value to someone or something and therefore cannot be seen as being neutral)	Constructivism/interpretivism (knowledge is made of facts that are socially constructed)	Pragmatism (knowledge is a tool for action, and as such, it should be evaluated according to whether it serves our desired interests)
	Methods	Use of verifiable evidence to arrive at research outcomes Evidence is obtained through observation of scientific data collection. Quantitative, RCT, statistics, developing a measurement tool	Reflections, viewpoints, perspectives of professionals show differences in perceptions; conferences, editorials, discussion forums, concept development, expert involvement	Use of the systems theory, mixed methods, quantitative and qualitative methods are used to explore how reality is perceived, model development, customer involvement	Use of the complexity theory, realist evaluations, dialogue among all stakeholders and participatory research, action research, co-creation with stakeholders
	Object	Measurement tools, data	Anything regarding Q, quality issues	TQM, EFQM and other models	Ecosystems, CAS
	Music example	Dance beats	Satie	Choir	Improvisation

Table 1.
Characteristics of the four quality paradigms

crucial in quality management is not new, and it was promoted during the past century in the contingency theory, but it seems to be undervalued. Different circumstances require organizations to use different quality approaches, and “no one has the monopoly on the truth” (Hardjono and Van Kemenade, 2020, p. 51). Ehigie and McAndrew (2005) state that TQM should not be used as a “canned technique” of management change. Rather, the management ideas need to be adapted within specific organizational settings, putting into consideration employees’ personality, organizational leadership styles, reward systems and other cultural practices accordingly.

Two factors define the context, according to Grint (2008): the increasing uncertainty about solutions to our problems and the increasing requirement of collaborative resolution. The four paradigms can be plotted along these two axes. And, it depends on the context which lens within TQM research needs to be used in which circumstances. In stable environments, the TQM approach for continuous improvement (reference paradigm) will be appropriate and

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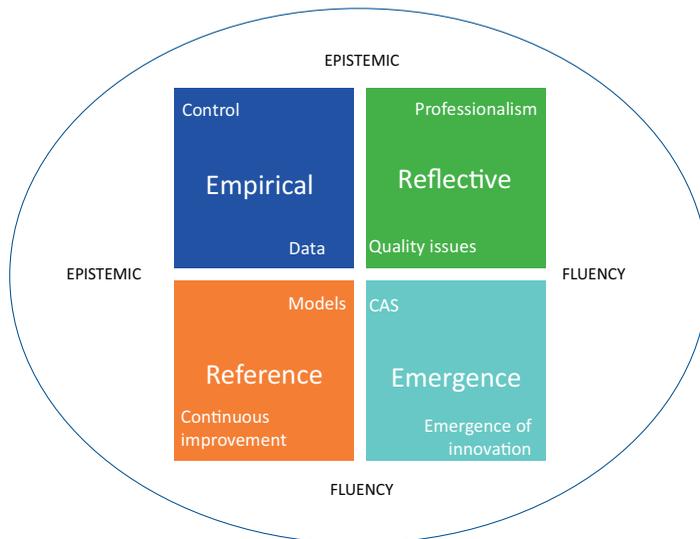


Figure 5.
The four quality
paradigms and
epistemic fluency

effective. In the context of an uncertain environment, however, innovation is needed rather than continuous improvement (Bon and Mustafa, 2013).

Rahman (2004) mentions that it is important to realize that today’s business environment is increasingly characterized by uncertainty and instability. To be competitive in this environment, companies have to transform themselves into more appropriate forms by bringing flexibility into their operations.

The uncertainty about the solution addressed in this research on TQM was divided into three levels: no real-life problem investigated, tame problems or wicked problems at hand. Rittel and Weber (1973) make this difference between tame and wicked problems, saying that problems that scientists have usually focused upon are mostly “tame” ones. For such a problem, the mission is clear. It is clear, in turn, whether or not the problems have been solved. Wicked problems, in contrast, have neither of these clarifying traits (Rittel and Webber, 1973, p. 160). Or, in the words of Grint: “A *Tame Problem* may be complicated but is resolvable through unilinear acts and it is likely to have occurred before. In other words, there is only a limited degree of uncertainty and thus it is associated with Management”. . . . And, “The (scientific) manager’s role, therefore, is to provide the appropriate *processes*” – the veritable standard operating procedure (SOP) - to solve problem. A *wicked problem* is more complex, rather than just complicated – i.e. it cannot be removed from its environment, solved and returned without affecting the environment. Moreover, there is no clear relationship between cause and effect (Grint, 2008, p. 12). However, the context determines to a large extent the need for a certain paradigm (Figure 6).

According to Grint (2008), more collaboration is needed for the solution related to the level of uncertainty. Collaboration or rather stakeholder participation in the research environment is defined here in four levels based on the participation ladder by Arnstein (1969): no involvement of others, the involvement of experts, customer involvement and co-creation with stakeholders. Co-creation is defined following Pieters and Jansen (2017, p. 15): “A transparent process of value creation in ongoing, productive collaboration with, and supported by all relevant parties, with end-users playing a central role.”

Often, the empirical paradigm is fit for fundamental research when no real-life problem requires an immediate solution, and the data under analysis do not need the involvement of

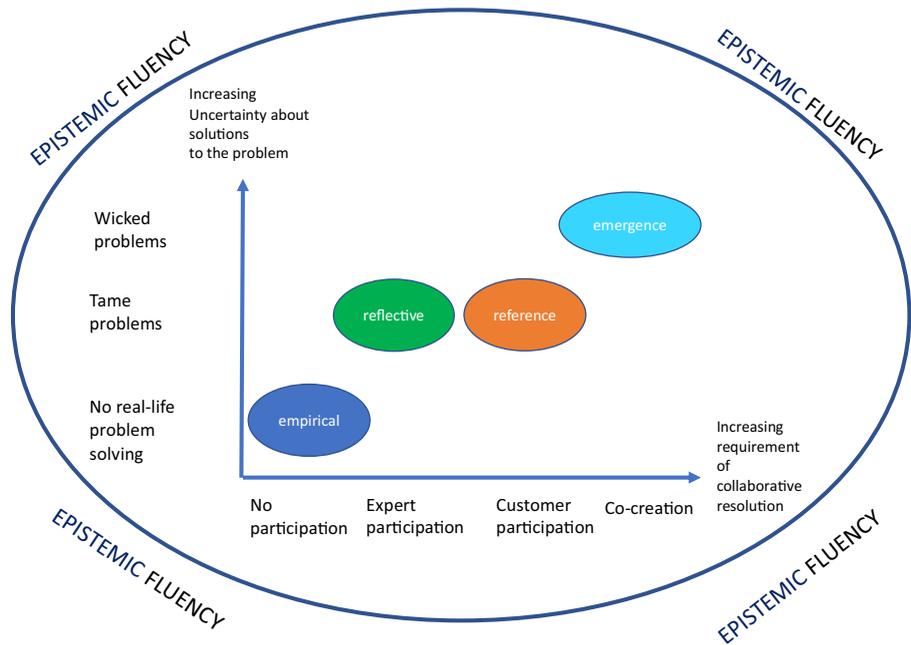


Figure 6. TQM as the epistemic fluency of four quality paradigms, based on Grint (2008)

others than the researchers. Tame problems can be solved within the reflective paradigm, where also other experts can be involved, or the reference paradigm when the customer is needed to participate. A wicked problem, according to Rittel and Webber (1973), is a social or cultural issue or concern that is difficult to explain and inherently impossible to solve. These are the crises that we long for answers to, but answers do not come easily. These include issues like education design, financial crises, healthcare, hunger, income disparity, obesity, poverty, terrorism and sustainability. Wicked problems require the co-creation of all stakeholders in the emergence paradigm (Figure 2). And, there we are in the heart of the TQM definition by the ASQ, since “in a TQM effort, all members of an organization participate” [2].

In summary, four quality paradigms are identified, based on control, professionalism, improvement and innovation. Each of them has its own merit, depending on the context. That creates the epistemic fluency needed for TQM. In a stable planned environment, e.g. the reference paradigm will fit, in an unstable, unplanned environment the emergence paradigm will. In a context of wicked problems, we need stakeholder participation and co-creation to resolve the situation. So, now the four quality paradigms have been presented, the question to explore which paradigms are represented in the scientific articles within TQM journal can be researched.

Materials and methods

The methodology of Arksey and O'Malley (2005) for conducting a review has been followed. First, the research question has been formulated; thereafter, the relevant studies were identified. The *TQM Journal* was chosen being one of the leading journals on quality management. When we look at a widely used metric as impact index, the average citation per document (two years) in the Scimago Journal Rank (SJR), the *TQM Journal* has a score of 3.9 citations, what makes it number 28 of a list of 301 journals within the subject area of business,

management and accounting. It is the first journal in the list specifically addressing quality management. The other two journals that have the most similarity, score 3.8 (*TQM and Business Excellence*, number 29) and 2.9 citations per document (*International Journal for Quality and Reliability Management*, number 45 on the list).

In 2016 and the years thereafter, there was a heated discussion within the Dutch Academy for Quality on the possible quality paradigms. So, within the *TQM Journal*, the past five years between January 2016 and December 2020 have been chosen to be able to have an extensive set of data, which should be sufficient to see the deployment of the four paradigms of TQM.

The articles are identified through a literature search on the journal's website. All are peer-reviewed and available in full text. The *TQM Journal* does not work with editorials in each issue. Editorials are sometimes used as a descriptive summary of a thematic issue. These are excluded from the research as well as one obituary.

The author assessed the title and abstract of all articles based on the characteristics of the four quality paradigms, as described in the theoretical framework. Since epistemology determines what kind of research you do and how you do it (Anastas, 2002; Gringery *et al.*, 2013), the purpose of the study was considered as the main characteristic for each paradigm. Besides the purpose, the paradigm is defined for the methodology. Often, these two correspond to one another. However, an article with a purpose in one paradigm can use methodology from another. For instance, the article you are now reading uses a review method (from the empirical paradigm) to create a creative dialogue on TQM (a purpose that fits the reflective paradigm). Another example is Castellani *et al.* (2020) who adopted a qualitative approach using Gioia methodology. After a preliminary email survey, data were collected from Italian tourism social enterprises (TSEs) using semi-structured interviews (empirical methodology). Using these results, the study proposes a model (reference purpose) for TSEs to create memorable tourism experiences from the service provider perspective.

Of each article, the author(s), year of publication, type of article, title and abstract were imported to MS Excel. Additionally, different factors related to the context of the study were determined: the economic sector where the research was done, the country of origin of the study, the level of stakeholder participation in the study and the characteristic of the problem that was investigated (as explained in the former paragraph).

Organizations were grouped under four economic sectors: the primary sector like agriculture and mining; the secondary sector like manufacturing, construction; the third sector regarding services, including media, healthcare, tourism and the quaternary sector regarding government; and the knowledge economy like education, information technology (Fisher, 1939; Foot and Hatte, 1953). Some studies covered more sectors, some studies did not mention any sector at all.

Countries were grouped into six geographical areas: North America, South America, Europe, Africa, Asia, Australasia and multi-continental studies. Some articles were not clear on the sector of the research. The country context of all the articles has been listed using three main categories: studies in one continent, those in two or more continents and those where the country origin of the sampled companies was not clarified.

In general, unclaritys were resolved by reading the entire article. Descriptive statistics were used to obtain frequencies and percentages.

Thereafter, the results have been collated, summarized and reported. After the comparison in the charts, the researcher looked for patterns in the data. These are reported in the paragraph titled patterns. The sixth step is optional, to involve consultants, other researchers in this case, to suggest additional references and provide insights beyond those in the literature.

In total, 283 articles from January 2016 until January 2021 (from Volume 28, Issue 1 to Volume 33, Issue 1) were included in this study. Forty-five were read fully to be able to characterize the article. Characteristics of the included studies can be found in [Table 2](#).

TQM	Total	283	100%
<i>Year of publication</i>			
	2016	54	19.0
	2017	51	18.0
	2018	36	12.7
	2019	58	20.3
	2020	84	30.0
<i>Economic sectors</i>			
	Primary	1	0.35
	Secondary	79	27.9
	Tertiary third	94	33.3
	Quaternary	25	8.8
	Other	1	0.35
	Multi-sector	38	13.4
	Not specified	45	15.9
<i>Geographic area</i>			
	Australasia	2	0.7
	Europe	82	28.9
	Asia	58	20.5
	Middle East	17	6.0
	USA and Canada	6	
	South America	7	2.5
	Africa	10	3.5
	Multi-continental	23	8.1
	Not specified	78	27.6
<i>Stakeholder participation</i>			
	No involvement	107	37.8
	Involvement of experts	16	5.6
	Customer involvement	148	52.4
	Co-creation/action research	8	2.8
	Not clear	4	1.4

Table 2.
Study characteristics

Most of the studies were in the tertiary (33.3%) and secondary (27.9%) sectors. Healthcare was the sector in 32 of the cases (11.3%). One article described TQM in a community (Kennedy, 2020). Most studies have been conducted in Europe ($n = 82$, 28.9%) and Asia (58, 20.5%). Within Europe, Italy was the most prolific country with, respectively, 25 (30.8%) of the articles. The USA and Canada only had five articles in these five years (1.8%). Many articles did not specify the region. Partly because, e.g. it was a literature review wherein studies from many countries were included or because it was an article on theory building where the country of origin was supposed not to matter. However, in total, 78 (27.6%) articles did not mention in title nor abstract where the study was held.

More than half of the articles worked with surveys, questionnaires or other methods to involve the customer in the research; 16 articles (5.6%) used experts in the field through expert panels and such to collect data from. In total, 107 articles (37.8%) did involve no other stakeholders than the researchers themselves. Eight studies (2.8%) used action research or co-design methodology to create optimal stakeholder participation.

Results

In the results section, the paradigms found in the articles are described, firstly, based on the purpose, and secondly, based on the methodology. The third paragraph goes into more detailed characteristics of the paradigms, based on the purpose.

The paradigms, based on the purpose

In this study, the use of the four quality paradigms in TQM research has been explored. Besides, the differences between the paradigms considering the economic sectors, geographic areas and the level of stakeholder participation in the study were examined. In using the lenses of the four paradigms on quality management, the author wanted to shed light on the different paradigmatic commitments in TQM. Each study was placed in one of the four paradigms based on the purpose of the study (Figure 1). The reference paradigm was most prevalent since 206 (72.7%) studies were placed in this paradigm. If we compare this with the areas that have been suggested for articles to be published (Table 3), that is not surprising. Even 15 of the 18 topics suggested there fit in the reference paradigm. It relates to the common understanding that TQM as such fits in the reference paradigm that TQM can be defined just by “improvement.” Prajogo and Sohal (2001) describe the considerable controversy concerning the relationship between TQM and innovation, which appears in the TQM literature. But, e.g. Sila and Ebrahimipou who did an investigation of the TQM survey-based research between 1989 and 2000 state that not only continuous improvement but also innovation “is considered to be an essential element of TQM” (Sila and Ebrahimipou, 2002, p. 923).

Characteristic Total, N (%)	Total 283	Paradigm			
		Empirical 27 (9.5)	Reference 206 (72.7)	Reflective 13 (4.6)	Emergence 37 (13.2)
<i>Year of publication</i>					
2016	54	4 (7.5)	44 (81.5)	3 (5.5)	3 (5.5)
2017	51	2 (4)	36 (70)	1 (2)	12 (24)
2018	36	4 (11)	27 (75)	1 (3)	4 (11)
2019	58	4 (7)	44 (76)	0 (0)	10 (17)
2020	84	13 (15.4)	55 (65.4)	8 (9.6)	8 (9.6)
<i>Economic sectors</i>					
Primary	1	0 (0)	1 (100)	0 (0)	0 (0)
Secondary	79	11 (13.9)	60 (76)	2 (2.5)	6 (7.6)
Tertiary third	94	7 (7.5)	69 (74.2)	3 (3.3)	15 (15)
Quaternary	25	4 (16)	16 (64)	0 (0)	5 (20)
Other	1	0 (0)	0 (0)	0 (0)	1 (100)
Multi-sector	38	3 (7.9)	30 (79)	0	5 (13.1)
Not specified	45	3 (6.6)	30 (66.7)	8 (17.8)	4 (8.9)
<i>Geographic area</i>					
Australasia	2	1 (50)	1(50)	0 (0)	0 (0)
Europe	82	9 (11)	55 (67)	3 (3.7)	15 (18.3)
Asia	58	4 (6.9)	53 (91.4)	0 (0)	1 (1.7)
Middle East	17	1 (5.9)	15 (88.2)	0 (0)	1 (5.9)
USA and Canada	6	0 (0)	5 (83)	0(0)	1 (17)
South America	7	1 (14.3)	5 (71.4)	0 (0)	1 (14.3)
Africa	10	1 (10)	9 (90)	0 (0)	0 (0)
Multi-continental	23	4 (17.4)	15 (65.2)	2 (8.7)	19 (8.7)
Not specified	78	8 (10.25)	46 (59)	8 (10.25)	16 (20.5)
<i>Stakeholder participation</i>					
No involvement	107	13 (12)	69 (64.5)	8 (7.5)	17 (16)
Involvement of experts	16	1 (6.25)	12 (75)	1 (6.25)	2 (12.5)
Customer involvement	148	14 (9.46)	119 (80.4)	2 (1.34)	13 (8.8)
Co-creation/action research	8	0 (0)	3 (37.5)	0 (0)	5 (62.5)
Not clear	4	0 (0)	4 (100)	0 (0)	0 (0)

Table 3.
Distribution of
paradigms by
characteristics
(purpose)

Of the studies, 37 (13.2%) were placed in the emergence paradigm, and 27 (9.5%) of the studies were placed in the empirical paradigm. Only 13 (4.6%) of the studies were placed in the reflective paradigm (Figure 7). The total number of included articles is 283.

The paradigms based on the methodology

When we look at the paradigms from the methodology perspective, most articles can be placed in the empirical paradigm (139, 49.1%) and the reference paradigm (92, 32.5%). The reflective paradigm covers 41 articles (14.5%), the emergence paradigm 11 (3.9%). See Figure 8. So, also in the paradigms based on the methodology, the reflective paradigm is undervalued, as well as the emergence paradigm.

Detailed characteristics by paradigm (purpose)

The characteristics by paradigm are presented in Table 3. All four paradigms can be discerned, although in different quantities. In every year from 2016 till 2021, the reference paradigm was most apparent. The reference paradigm was most prominent in all economic sectors and all geographic regions. Customer involvement appears to be a dominant factor there. The empirical paradigm has most articles in 2020 (15.4%) in the secondary sector (13.9%) in Europe (11%). Customer involvement occurs, but almost the same score is for no involvement. The reflective paradigm scores best in 2020 (9.6%). Many of these are not specified for sector or country. In most cases, there is no stakeholder involvement.

Four paradigms (purpose)

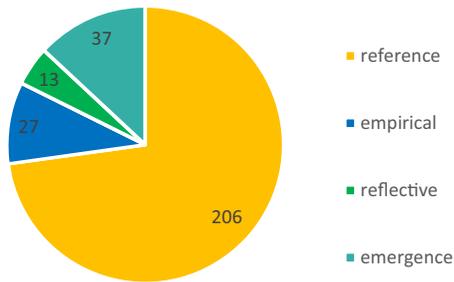


Figure 7.
The number of articles in each paradigm (purpose)

Four paradigms (methodology)

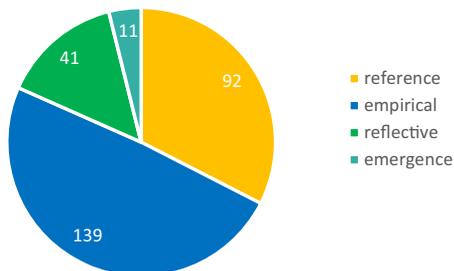


Figure 8.
The number of articles in each paradigm (methodology). The total number of included articles is 286

The emergence paradigm was found to be most present in 2017 and 2019. This result is mostly caused by two thematic issues managing service innovation and quality: a service ecosystem perspective and quality and innovation: how to create value for customers by value-added innovation. The emergence paradigm is most popular in the tertiary sector ($n = 15$) and Europe ($n = 15$). Many examples ($n = 19$) cover more continents.

Discussion

The purpose of the study is to explore the TQM paradigm in relation to the context of the 21st century within the *TQM Journal*. We here present four patterns that emerged from the data that need to be discussed: context-sensitivity, reflexivity, coping with uncertainty and co-creation and stakeholder participation.

Context sensitivity

Earlier in the framework, it was stated that different circumstances require organizations to use different quality approaches. The need for a certain paradigm depends on the context. From researchers that requires researchers to be context sensitive. Important elements in the context are the economic sector and country where the organization(s) under study are located.

Jayjaram *et al.* (2010) studied the differences in total effect relationships among TQM constructs across four contingencies, firm size, TQM duration, unionization and industry type. Industry type was the strongest contributor to variation in total effects. Sila (2007) notes that the results of the studies on the influence of country of origin on the development of TQM are inconsistent. For instance, some of the studies found that TQM practices were similar across the compared countries (e.g. Adam *et al.*, 1997; Rao *et al.*, 1997), whereas others reported differences (e.g. Raghunathan *et al.*, 1997; Tata *et al.*, 2000). That makes it important to be attentive to the possible effect of differences caused by industry type and country. Often these factors were not mentioned in the title nor the abstract of the articles. In general, the limited number of articles from, e.g. the USA and some European countries like The Netherlands and Germany, and the high amount of articles from countries like Italy (25, 8.8% of all articles) and India (24, 8.5%) are noteworthy.

In some research, the economic sector or country of origin might be of less importance. Reflective articles, e.g. might present theoretical insights that are not related to the economic sector or country. Palumbo *et al.* (2017), suggesting a “recipe” for the implementation of a sustainable and innovative healthcare service ecosystem, may be an example of being not country-specific.

However, not every research recognizes the importance of the context. Bugdol (2020) presents the interesting role and meaning of fear in organizations implementing TQM. One would expect attention for cultural or contextual differences. Other articles state the context as a limitation. Jurburg (2019) describes employee participation in continuous improvement. They acknowledge the study’s limitations that the model presented was tested in only one manufacturing plant located in Spain. Banuro *et al.* (2017) formulate that their study used all the 40 ISO certified firms in Ghana, but that this number is quite small relative to ISO certified firms worldwide. Further, they say, the study was done in Ghana, and for these reasons, generalization to the rest of the world is limited. Kros *et al.* (2019) state as a research limitation that survey respondents were predominantly from the same country (the USA). Cobelli and Chiarini (2020) consider the main limitation of the present study to be the limited number of territories investigated.

Some researchers make the contextual differences in the use of TQM the topic of their study. Kashif *et al.* (2016) present the state of service quality from a cultural perspective, especially within an Asian cultural context. Moyes *et al.* (2016) examine the customer loyalty responses specifically of urban service users in Scotland. Frahm (2016) investigates how

organizations from the Western part of the world (Denmark specifically) can combine the issue of handling cultural challenges along with seeking to optimize internal processes through lean management, efficiently when operating in Southeast Asia (Indonesia). [Tortorella et al. \(2017\)](#) empirically investigate the effect of a set of contextual variables on the implementation of the lean supply chain (LSC) practices. [Marin-Garcia et al. \(2018\)](#) perform a context analysis about a specific kaizen program. [Suham-Abid and Vila-Lopez \(2020\)](#) analyze differences in airline service quality perceptions (service content) and visual communication styles (service form) between passengers from a high-context (HC) culture (Iraq) and a low-context (LC) one (Germany).

Collective reflexivity: more reflective paradigm

[Kingson et al. \(2015\)](#) state that reflection is a prerequisite to keep observing systems and to allow transformation and emergence, where the fear of change leads to institutionalization and discouraging of co-creation. [Lincoln and Guba \(2000\)](#) talk about reflexivity and define it as the process of reflecting critically on the self as a researcher, the “human as instrument.” It is a “conscious experiencing the self as both inquirer and respondent, as teacher and learner, like the one coming to know the self within the process of research itself” ([Lincoln and Guba, 2000](#)). [Popa et al. \(2015\)](#) propose reflexivity to be the “regulative ideal” that links different paradigms. Examples of reflective articles in this scoping review are [Miller et al. \(2018\)](#) who examine the quality movement in the framework of an organizing taxonomy model from six perspectives: global trend, national mandate, industry trend, organizational strategy, operational strategy and personal philosophy or the conceptual paper by [Moccia \(2016\)](#) on the role of values and virtues in TQM.

[Popa et al. \(2015\)](#) state that in science, a reflexive questioning of values, background assumptions and normative orientations is not sufficiently acknowledged. Also, in the *TQM Journal*, the reflective paradigm is lagging behind. Other journals start every issue with a reflective editorial. In the case of the *TQM Journal*, a few editorials have been part of the issues under study, but they have been excluded. These editorials appeared to be not reflective, but mostly descriptive. The guest editorial from [Gaudenzi et al. \(2021\)](#) as an introduction to the issue on supply chain risk management: approaches and tools for continuous improvement is an exception; it combines the description of the articles that is included with reflective remarks on the topic. More (collective) reflection on TQM is welcomed, e.g. in perspective papers or viewpoints as it is called. The online abstracts of the *TQM Journal* do not characterize an article as a viewpoint.

Coping with uncertainty

An important factor that determines the need for a certain paradigm is the nature of the problems that occur. [Ahir et al. \(2020\)](#) gather data on uncertainty, and their 2020 analysis leads to the conclusion that global uncertainty has increased significantly since 2012. Uncertainty is higher in emerging and low-income economies than in advanced economies. And, uncertainty spikes are more synchronized in advanced economies than in emerging and low-income countries. So, one can imagine wicked problems in organizations increase. In the study, some wicked problems have been presented, like the role of leadership in TQM ([Kiari, 2017](#); [Kumar and Sharma, 2017](#)). Fear for TQM ([Bugdol, 2020](#)) can be considered a wicked problem, as well as cultural change ([Uzuetta et al., 2020](#)). [Saleh and Watson \(2017\)](#) examined how companies can achieve business excellence more specifically in a highly volatile, uncertain, complex and ambiguous (VUCA) environment. The special issue on supply chain risk management relates to uncertainty issues (2020, Volume 32, Issue 5).

Like it is shown in [Figure 2](#), based on [Grint \(2008\)](#), wicked problems have the best chance to be solved by using the emergence paradigm. However, despite the increase of uncertainty,

the emergence paradigm is marginally represented. This raises the question of whether our research approaches are consistent with the complex environments and conditions we encounter in TQM. A special issue was on ecosystems in 2017, one more on innovation in 2020. One article more on ecosystems was published by [Manna et al. \(2018\)](#). When we look at the methodology methods from the emergence paradigm, it is surprising that complexity theory is seldom mentioned. Action research is conducted in only seven cases ([Mättö, 2019](#); [Malik et al., 2016](#); [Gustavsson et al., 2016](#); [Kassela et al., 2017](#); [Mättö, 2019](#); [Kennedy, 2020](#); [Prashare, 2020](#); [Unzueta et al., 2020](#)). [Avelar et al. \(2020\)](#) do not call it action research but do make use of direct involvement in the environment under study.

If we want to learn, we might have to look at the healthcare sector, five of the emergence paradigm articles (13%) come from that sector. Surprisingly, eight out of the 39 come from Italy (20%).

Co-creation and stakeholder participation

[Grint \(2008\)](#) shows us that wicked problems require collaborative resolution. [Kaehne \(2017\)](#) researched integrated care and states that the patient perspective remains outside the scientific integration paradigm. [Nurjono et al. \(2018\)](#) state that care is integrated for citizens, not with citizens. A similar problem might be the case in TQM research. Although in 52.4% of the studies the customer is engaged one way or another (interviews, surveys, focus groups, questionnaires), in 37.8%, he/she is not. Furthermore, only in 2.8% of the articles, the stakeholders really co-create the solution to the problem. [Gustavsson et al. \(2016\)](#) plea for stakeholder participation: “The application builds on input from various groups (such as patients and healthcare professionals), and, by using input from various stakeholders. This approach appears to overcome a gap, identified in earlier research, of either relying solely on patients or solely on healthcare professionals, when identifying patients’ needs. Rather input from several groups – patients, relatives, and professionals – are suggested to be used in combination” (o.c. p. 151). Another example also in healthcare comes from [Moretta-Tartaglione et al. \(2018\)](#) who found that patient empowerment positively influences value co-creation, which, in turn, is positively related to patient satisfaction.

[Fundin et al. \(2020\)](#) highlight themes that are vital and important for research projects within quality management during the coming decade. The first one they mention is “systems perspective applied.” This study on TQM supports this theme, although it emphasizes the complexity theory beyond the systems theory. [Van Kemenade \(2021\)](#) stresses the differences between the two. The second theme mentioned by [Fundin et al.](#) is “stability and change” that relates to the finding of this study regarding “coping with uncertainty.” The third theme “higher purpose as a QM booster” is in line with “reflexivity” (including a reflexive questioning of values, background assumptions and normative orientations). The fourth topic “models for smart self-organizing” strongly relates to “co-creation and stakeholder participation.” [Fundin et al. \(2020\)](#) add “integrating sustainable development” to the findings of this study, where this study adds context sensitivity to theirs.

Conclusion

The research question was to explore which paradigms are represented in the scientific articles within the *TQM Journal* of the past five years, from 2016 till 2021. This research shows all four quality paradigms, the empirical, reference, reflective and emergence paradigm, are used in the *TQM Journal*. The reference paradigm is dominant in the purpose of the studies, the empirical paradigm in the methodology. The emergence paradigm increases over the years, mainly in special issues. The reflective paradigm is lagging behind. We recommend more attention from researchers and reviewers for reflexivity. The TQM

concept is continuous but unbalanced. TQM as a scientific field should be open to all epistemologies, and members of the TQM movement should be able to identify and use different paradigms to develop and evaluate TQM. More awareness of all paradigms and reflection on the used epistemologies is needed on the road ahead to a scientific TQM paradigm. Another recommendation is that researchers are clear in their title or abstract about the economic sector and country of the case under study.

Because of the increasing uncertainty, we are surprised not to find more emergent research. The current challenge for TQM is not about preventing the chaos to occur by planning, checking and making the right choices for adjustment, but rather about perceiving and embracing the uncertainties and the chaos and seek for synergy with other organizations and people. The research shows that more influence of the stakeholders might be fruitful and create better solutions for the wicked problems ahead.

Strengths, limitations and suggestions for further research

The study followed a rigid scoping review methodology (Arksey and O'Malley, 2005). Another strength of this study is addressing literature on TQM from the perspective of the four quality paradigms, giving new insights into the different epistemologies used in TQM research. Van Kemenade *et al.* (2021) had a similar aim to study the four quality paradigms in integrated care research. In that case, two reviewers independently assessed the title and abstract of all articles based on the characteristics of the four quality paradigms, as described in the theoretical framework. There, most values were placed on the purpose (aim) of the study. Each article was placed in one primary paradigm. Discrepancies were resolved by discussion between the two researchers after reading the entire article. These discrepancies appeared to be caused by the difference between the paradigm in the purpose mode or as the methodology of the study. That is why, these two aspects have been separated in this research. It made a second reviewer less necessary. But, just like in thematic analysis, "the subjective skills the researcher brings to the process are embraced— a research team is not required or even desirable for quality" (Braun and Clark, 2020, p. 6). Every article was placed twice in one prominent paradigm based on the aim or methodology of the study. However, in several articles, different characteristics of other paradigms were present. It needs to be underlined that an overlap between the paradigms is inevitable. The articles were firstly screened by title and abstract to characterize the paradigm. When that did not provide sufficient data, the whole article was taken into account. However, that might have caused some bias.

It is recognized that the articles in the study all were published in the same scientific journal. It would be interesting to conduct a follow-up study in other journals on (total) quality management and compare the results. Furthermore, the complexity of the current times justifies more emphasis in quality management research on the context, on collective reflection, on coping with uncertainties and on co-creation.

Notes

1. <https://asq.org/quality-resources/total-quality-management/tqm-history>
2. <https://asq.org/quality-resources/total-quality-management/tqm-history>

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Further reading

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