THE CONCEPT of quantum leadership is linked to early work on quantum physics in the 1900s. It has been described as an approach in which leaders understand how the work environment and the healthcare organisational context have been in a state of flux as they have been changing in response to 21st century needs, and how to respond to change in a constructive manner in the future (Porter O’Grady and Malloch 2018). According to Porter O’Grady and Malloch (2018), advances in technology and changes in society have brought the world from the industrial age into the digital age, where multiple forms of information are available to many more people than in previous centuries. This affects how health is perceived and understood, as well as how care is delivered. Quantum leadership arose in recognition of, and as a direct response to, the constant changes that now occur in an increasingly complex healthcare environment (Zohar 2022).

This article aims to support nurses in leadership and/or management roles to explore the potential benefits of quantum leadership, invitng them to consider its application to nursing practice as an innovative way of leading care in response to the changing requirements of healthcare delivery.

Nurse leadership
Leadership has been defined as a process of influencing people to achieve a common goal (Northouse 2015). According to Northouse (2015), a leader primarily influences a team to form a connection with the team members and create a shared sense of purpose, with the aim of delivering the goals and values of the organisation. Adair and Thomas (2004) proposed that the role of a leader within a team is vital, because without a leader the team would lack guidance and direction and would likely soon become unproductive and ineffective.

Quantum leadership: a new approach for nurse leaders
Anne Harrington

Abstract
Healthcare is continually evolving in response to new global challenges, changes in society, limitations on resources and the growing use of technology. In light of these changes and challenges, this article discusses the benefits for nurse leaders to explore a new approach known as quantum leadership. This is a relationship-focused and value-based leadership style in which leaders understand that healthcare organisations have been in a state of flux and recognise how to respond constructively to change in the future. Quantum leadership enables nurse leaders to create and maintain synergistic team working, whereby the team works together towards the common goal of delivering optimal person-centred care. The author suggests that quantum leadership is an engaging and realistic approach to adopt, with benefits of all staff delivering healthcare services and ultimately for patients.

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leadership, leadership frameworks, leadership models, leadership skills, management, patients, person-centred care, professional
The NHS Leadership Academy (2013) detailed the following expected outputs of effective leadership as a means of delivering person-centred care:

- Satisfied, loyal, productive and engaged employees.
- High-quality, compassionate care.
- Valued services.
- Successful healthcare organisations.

Hoffman et al (2011) asserted that a leader needs to have ‘task competence’ (or ‘task credibility’) – that is, they should be capable of performing the tasks expected of team members. Task competence also relates to the leader’s intelligence, conscientiousness, openness to experience and emotional stability (Hoffman et al 2011). All these qualities are required of nurse leaders who apply the principles of quantum leadership in their practice.

**Principles of quantum leadership**

Zohar (2022) suggested that quantum leadership requires a leader who recognises that change is part of life, who can ‘show others the way’ and who has undergone personal development. People who apply quantum leadership in their work must be able to reflect critically, rise to challenges, aspire to make changes, ‘bring out the best’ in others and help others become effective leaders themselves. According to Zohar (2022), ‘becoming a quantum leader requires becoming a good person. It requires a person of integrity whom others can trust… whose own example can inspire others’.

Huston (2013) stated that nurse leaders need to be quick to adapt because operational realities no longer require a ‘fixed skill set’ but ‘multiple intelligences’, whereby some established practices cease to have value and some new approaches are needed. This creates opportunities for quantum leadership to emerge and be applied.

There are 12 principles of quantum leadership (Box 1) (Zohar 2022), which correspond to the knowledge and skills that a quantum leader needs to possess to effectively guide their team and organisation through periods of transformation (Porter O’Grady and Malloch 2018) – while remaining mindful that all team members have leadership responsibilities. Due to a rapidly changing environment and increased stressors, the context in which people work is increasingly complex and dynamic, which may negatively affect the delivery of safe and effective person-centred care. An understanding of the principles of quantum leadership can enable nurses as leaders to address present and future needs, as well as to manage conflicts in the team.

**Key points**

- Leadership has been defined as a process of influencing people to achieve a common goal
- Traditional ways of thinking are not adequate to respond to societal and technological change
- Relationship-focused leadership approaches are crucial for teams to work effectively in an increasingly complex environment
- Quantum leadership is a relationship-focused approach in which leaders understand how to adapt to change
- Quantum leadership can support nurse leaders to sustain effective teams that will thrive amid uncertainty

**Box 1. The 12 principles of quantum leadership**

The 12 principles of quantum leadership correspond to the knowledge and skills required of quantum leaders, that is:

- Self-awareness
- Having a vision and being led by values
- Spontaneity
- Taking a holistic view
- Field independence (the person tends to prefer autonomy and to direct their own learning)
- Humility
- Ability to reframe
- Asking fundamental ‘why’ questions
- Celebration of diversity
- Positive use of adversity
- Compassion
- Sense of vocation (purpose)

(Adapted from Zohar 2022)
or organisation that, if not addressed, could compromise patient outcomes (Porter O’Grady and Malloch 2018).

**Advances in health technology**

To understand the concept of quantum leadership in healthcare, it is important to explore the idea of health technology and its role in healthcare practice. The World Health Organization (2020) defined health technology as the ‘application of organised knowledge and skills in the form of devices, medicines, vaccines, procedures and systems developed to solve a health problem and improve quality of life’. In recent years, new and more extensive health technology has been embedded into the healthcare system, thereby helping to improve performance and patient safety, increase collaboration and reduce costs (Singhal et al 2020).

Porter O’Grady and Malloch (2018) suggested that there are four main factors arising from technology that need to be considered in the healthcare context:

» Multiple changes in the healthcare system.
» Increased availability of information, for example through virtual interactions between healthcare professionals and patients.
» Knowledge as a utility rather than a possession, with healthcare providers transferring the locus of control for health-related decision-making and management to patients.
» Rapid technological advances that are changing people’s relationship with healthcare services, for example genomics and technology-assisted procedures such as microsurgery or laser surgery that can reduce the number and length of hospital stays.

The use of health technology, including digital tools, in healthcare service provision requires nurses to adapt and work in innovative ways. However, it is important that, amid the changes required to respond to the growing use of technology, other areas that are fundamental to effective healthcare delivery are not neglected. Mistry (2020) emphasised that the ‘health and care system must not lose sight of the human need driving use of technology to improve outcomes, quality of life and the care it provides with the limited resources available’. Although new technology-based tools enable healthcare to be delivered at a faster pace and may eventually reduce the need for human resources, nurses must not lose sight of the fact that patients and families still require care and compassion. Garcia-Dia (2020) suggested that in healthcare there are ever-increasing demands on nurses, who are being called on to undertake expanding roles and master technological tools and information systems. In this context, quantum leadership can support nurse leaders to adapt their style to sustain an effective team, enabling each team member to thrive in an environment of growth and opportunity but also of uncertainty and disruption (Porter O’Grady and Malloch 2018).

**Applying quantum leadership in healthcare**

In a healthcare system characterised by increasing complexity, relationship-focused leadership approaches are important to develop teams that can effectively deliver care and services (Parris and Peachey 2013). Quantum leadership is one such approach. Technological and societal developments have led to quantum leadership becoming increasingly prominent in healthcare, although it is still an emerging approach. As quantum leadership continues to evolve, it creates a space for other relationship-focused leadership approaches to emerge and combine (Deardorff and Williams 2006, Porter O’Grady and Malloch 2018). This can optimise the leadership styles adopted in nursing practice.

Building on quantum physics theories, quantum leadership suggests that reality is often discontinuous and deeply paradoxical (Marquis and Huston 2017). To clarify the meaning of ‘discontinuous’, Porter O’Grady and Malloch (2018) referred to Schrödinger’s cat thought experiment, whereby it is not known whether a cat inside a sealed box is alive or dead until someone opens the box, so the cat is considered both alive and dead until it is seen. That experiment shows that there is both the ‘actually reality’, which is current and present, and the ‘potential reality’, which is still current and present but not yet experienced.

In the healthcare context, flux and uncertainty can be interpreted as meaning that some of the certainty once thought to be inherent to well-organised systems is not as certain as previously believed; that is, the healthcare system may have become more uncertain and unpredictable amid societal changes and global uncertainty. For example, in the new post-pandemic reality, more than six million patients are waiting for elective treatment, 1.5 million people are self-reporting symptoms of long COVID...
and the cost of living is rising rapidly (Royal College of Nursing 2022), facts which all have significant implications for health and social care services.

One example of quantum leadership being deployed in a useful way was in response to the COVID-19 pandemic, when healthcare professionals had to adapt to rapid change with little preparation. The pandemic propelled health and social care professionals into a ‘quantum age’ where staff were required to be resilient and agile, adapt to digital technology, be courageous and make bold decisions in a complex and unpredictable environment (Hlupic 2021).

**Traditional and new leadership styles**

In the 20th century, the predominant management and leadership style was ‘command and control’, which is authoritarian in nature and relies on a top-down approach. That leadership style focuses on achieving greater efficiency by teaching the workforce to obey directives with little or no questioning and to resist change. Authoritarian leaders tend to closely supervise staff and make important decisions without consultation (Storey and Holti 2013).

Quantum leadership marks a paradigm shift from that traditional approach to a ‘new age’ approach underpinned by a ‘value-driven health philosophy’ (Porter O’Grady and Malloch 2018). According to Porter O’Grady and Malloch (2018), traditional leadership approaches typically focused on productivity and used ‘Newtonian thinking’ – in reference to Isaac Newton’s law of gravity – to describe the top-down approach applied in bureaucratic organisations. Although such traditional approaches can still be effective, they are often not suitable in the current climate, where internal and external factors affecting organisations are in a state of flux. Traditional ways of thinking are no longer sufficient to respond to change in society and to the prospect of an increasing technological and digital future in healthcare. Quantum leadership thinking focuses on the influence that the individual leader has on identified outcomes rather than only on the organisation, especially when changes or adaptations are required (Zohar 2022).

Table 1 provides a comparison of Newtonian thinking and quantum leadership thinking.

Porter O’Grady and Malloch (2018) asserted that traditionally, when leaders encountered change, they may have lacked motivation for it and responded negatively, for example saying: ‘Let’s focus on the present’, ‘There is no time for this work’ or ‘We cannot do the work anymore’. A motivated leader who recognises the value of change may respond more positively, for example saying: ‘Let’s focus on the potential of this change’, ‘We can cope with the new trend of this work’ or ‘Things have changed so we need to find a new model for our work’. That leader is able to adapt and innovate.

**Links with other leadership styles**

Quantum leadership is closely linked to other relationship-focused and value-based leadership styles, including transformational leadership, servant leadership and authentic leadership (Marquis and Huston 2017). Similarly to quantum leadership, these leadership styles have enabled healthcare teams to adapt to the ongoing change that is part of contemporary society, including digital innovations, demonstrating success in energising and engaging the team (Schwartz and Thomas 2002).

**Transformational leadership**

Quantum leadership builds on the concept of transformational leadership, which for many years was one of the main leadership styles advocated for adapting to the rapid changes in the world of work.

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**Table 1. Comparison of Newtonian thinking and quantum leadership thinking**

<table>
<thead>
<tr>
<th>Newtonian thinking</th>
<th>Quantum leadership thinking</th>
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<tbody>
<tr>
<td>Manages individual activities and functions, ensuring work and role obligations are met</td>
<td>Facilitates relationships between work and staff in all areas of the organisation</td>
</tr>
<tr>
<td>Employs singular and linear thinking</td>
<td>Takes a panoramic view of intersections, relationships and trends</td>
</tr>
<tr>
<td>Focusses on extrinsic motivations such as promotions and financial rewards (for example bonuses or performance-related pay)</td>
<td>Focuses on intrinsic motivations such as the feeling of being valued as a team member and a sense of belonging</td>
</tr>
<tr>
<td>Is only concerned about decision-making and outcomes</td>
<td>Facilitates decision-making</td>
</tr>
<tr>
<td>Invokes change to develop itemised plans that are independent of individual contributions</td>
<td>Describes change in a language that connects staff with the value and meaningfulness of their efforts</td>
</tr>
<tr>
<td>Focusses on process-driven actions</td>
<td>Focuses on value-driven actions</td>
</tr>
<tr>
<td>Is concerned with a mechanistic model of design</td>
<td>Helps others to adapt to the demands of a value-driven healthcare system (for example, in nursing, the values embodied by the 6Cs – care, compassion, competence, communication, courage and commitment)</td>
</tr>
<tr>
<td>Considers people as resources to execute a determined process</td>
<td>Considers teams as intrinsically motivated individuals with a shared purpose to achieve meaningful outcomes</td>
</tr>
<tr>
<td>Makes plans for the future according to the most likely scenarios or the most expected outcomes, seeks data that supports the current view and avoids risk</td>
<td>Formulates many scenarios for what the future might hold, encourages questions and experiments, and embraces appropriate risk</td>
</tr>
<tr>
<td>Relies exclusively on formal networks and organisational constructs as sources of information and action</td>
<td>Recognises the power of informal networks and uses them in conjunction with formal networks</td>
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</table>

(Adapted from Porter O’Grady and Malloch 2018, Burrell 2021, Zohar 2022)
changes seen in society (Abu-Tineh et al 2008). Bass and Avolio (1994) stated that transformational leadership encourages leaders to: attain higher moral standards by doing the ‘right thing for the right reason’; treat people with care and compassion; be creative and innovative; and inspire others with their vision. Quantum leadership suggests that ‘leaders must work together with subordinates to identify common goals, exploit opportunities, and empower staff to make decisions for organisational productivity to occur’ (Marquis and Huston 2017).

Transformational leadership has been essential in moving healthcare organisations towards future planning and delivery (Tuuk 2012, Watkins 2012), the transformational leader being described as one who ‘commits people to action, who converts followers into leaders, and who may convert leaders into agents of change’ (Bennis and Nanus 1985). Transformational leaders empower members of the team to co-create a vision for the organisation while developing mutual trust to achieve jointly agreed organisational goals.

Some have described the transformational leadership style as the gold standard of leadership because it serves as a catalyst for change (Northouse 2015). Furthermore, transformational leaders tend to have a long-term vision that they can communicate to their team, motivating the team to become more independent, to develop an entrepreneurial attitude to their work and to plan for their future career goals (Bass and Avolio 1994, Abu-Tineh et al 2008). The leader influences the team and uses team members’ personalities to ensure all staff work collaboratively, resulting in greater job satisfaction and enhanced patient care (Burns 1978, Bass and Avolio 1994, Cummings et al 2010).

Bass and Riggio (2006) reported that transformational leaders demonstrate the ‘four Is’:

- Idealised influence – they set high standards of moral and ethical conduct and lead by example.
- Inspirational motivation – they stimulate the inner worlds of their team members.
- Intellectual stimulation – they foster creative, innovative problem-solving and support a culture that challenges the status quo.
- Individualised consideration – they address the challenges to their team’s welfare and foster an atmosphere of trust by coaching and mentoring their team with empathy to promote growth and development.

Quantum leaders embrace the self-transformation required to demonstrate the four Is of transformational leadership, which reinforces their ability to work together with subordinates to identify common goals, exploit opportunities and empower staff to make decisions.

Servant leadership
Quantum leadership is also linked to the servant leadership style, which was first put forward by Robert Greenleaf in 1970. Greenleaf (2015) wrote: ‘The servant leader is servant first. It begins with the natural feeling that one wants to serve, to serve first. Then conscious choice brings one to aspire to lead’. Servant leadership is well suited to nursing because it demonstrates important attributes for nurses to have, such as listening, empathy, self-awareness, stewardship and a commitment to serve others for the ‘greater good’ (Coetzer et al 2017). Savel and Munro (2017) considered it to be ‘more than just a leadership style, but a philosophy of life’ which provides a set of practices that enriches the lives of individuals, builds better organisations and ultimately creates an increasingly just and caring world. Fundamentally, the main role of the servant leader is to develop their team members so they can achieve their full potential (Savel and Munro 2017).

According to Greenleaf (2015), servant leaders display four essential qualities:

- They have a deep sense of the interconnectedness of life and all parts of the organisation.
- They have a sense of engagement and responsibility.
- They are aware that all human endeavour, including business, is part of a larger and richer fabric of the whole universe.
- They know that they ultimately serve others. Greenleaf’s (2015) four qualities of servant leadership have many similarities with the 12 principles of quantum leadership (Box 1), particularly the principle of humility, whereby the leader realises that others have knowledge that they do not have themselves. Servant leaders and quantum leaders are therefore equally willing to seek help or advice, thereby demonstrating that they are able to acknowledge and respect the expertise of others (Zohar 2022).

Authentic leadership
According to George (2003), authentic leadership is exemplified when an individual is true to themselves and does not attempt to adopt a different personality or values in their
role as leader. Avolio et al (2009) identified four features of authentic leaders:

» Balanced processing – the leader can analyse data rationally before making a decision.
» An internalised moral perspective or ‘moral compass’ – the leader is guided by internal moral standards.
» Relational transparency – the leader can openly share feelings and information appropriate to the situation.
» Self-awareness – the leader understands their own strengths and weaknesses and how to make sense of the world.

Authentic leadership can help staff to bring their ‘whole selves’ to their role and participate fully and openly in the endeavours of their organisation. Cummings et al (2010) stated that authentic leadership has been shown to encourage the development of trust, foster a healthier and engaging work environment and establish positive interpersonal relationships. Marquis and Huston (2017) identified five distinguishing characteristics of an authentic leader: purpose, values, heart, relationships and self-discipline.

Quantum leadership links well with authentic leadership, since both leadership styles require an individual to know themselves, their strengths and weaknesses and their beliefs and values (Zohar 2022). Zohar (2022) suggested that quantum leadership entails staying true to one’s principles and being self-critical, two further features that it shares with authentic leadership. According to Liden et al (2014), servant leadership is also aligned with authentic leadership because authenticity is a central tenet of both approaches.

Developing quantum organisations

Quantum leadership encourages leaders to work collaboratively by inviting each team member to take an active role in creating and maintaining synergistic team working, which can be built on to develop a quantum organisation. Moran et al (2014) defined synergistic team working as the combined action that takes place when different people work together towards a common goal, sharing their perceptions, insights and knowledge and thereby improving results.

Porter O’Grady (2015) suggested that all nurses have a role in developing an internal organisational culture that reflects the principles of quantum leadership and subsequently creates a quantum organisation. Deardorff and Williams (2006) defined a quantum organisation as: ‘An organisational capacity to create an empowering atmosphere of trust, safety, and a sense of belonging enabling continuous introspective and organisational learning and the aligning of personal values to behaviour’.

In a quantum organisation, all individuals are encouraged to work together in mutually enhancing ways to achieve optimal patient care, resulting in (Deardorff and Williams 2006):

» Spirit and vision.
» Shared values.
» Positive dialogue and communication.
» Trust and personal courage.

According to Deardorff and Williams (2006) there are three tiers of interaction in a quantum organisation:

» ‘Self’ – in the nursing context, this would involve nurses who consider person-centred care; share their values with others; establish trust and personal courage; and maintain a positive dialogue with all health and social care professionals.
» ‘Motions of fluidicity’ – this involves a model of interconnections that comprises trust, thinking together, dialogue, spirit, learning and values.
» ‘Leader’ – this involves a leader who collaboratively communicates their vision to the whole team. The intersection of these three tiers of interaction is where synergy is created.

A quantum leader who focuses their beliefs and values on establishing that synergy has the capacity to create and maintain an empowering atmosphere and therefore contribute to develop a quantum organisation.

Conclusion

In the dynamic and increasingly technological environment in which nursing operates, there is an ongoing need for effective and resilient leaders. Nurses as leaders need a flexible leadership approach that recognises this changing reality and can harness its effects for the benefit of their teams, and ultimately of patients. Quantum leadership in nursing recognises the particular time in history that people live in and responds to the effects of that reality on nursing practice. Quantum leadership focuses on personal qualities such as compassion and humility, and on developing relationships between staff, patients and organisations in a time of change. Although quantum leadership is a relatively new approach, its principles provide an opportunity to encourage collaboration with patients, increasing each nurse’s ability to be an effective leader and provide high-quality care.