Prevalent Leadership Styles And Its Traits In Digitalized Era: A Case Study On Engineering Colleges Of Himachal Pradesh Technical University

Vijay Kumar Chouhan[1] , Dr. Megha Mehta[2]

[1]*Principal, Technical Education Department, Government of Himachal Pradesh, India*
[2]*Associate Professor, Lovely Professional University, Punjab, India*

Abstract

Fast evolving digital technology has fundamentally changed the institutions in irreversible manner including the leadership practices.Effectiveness of leadersis critical for survival and competitiveness of any institution, which arises the need for identifying successful leadership practices.Disruptive changes in the leadership practices due to digital transformationhas resulted in new speciesof leaders. These new species of leaders require different traitsand skills to work in digitalized environment. These leaders have to work in digital environment in whichdigital connect, rapid decisions, thinking, reasoning, collaboration, co-creation, teamwork, innovation, creativity, problem solving, empowering others, liaising, stress management, empathy and critical thinking will be needed. The current study focuses on identifying the leadership stylewhich is most prevalent in the engineering colleges of Himachal Pradesh Technical University. It was concluded that phronetic leadership style was most prevalent and creative leadership style was least prevalent leadership style whereas,altrocentric leadership style and anticipatory leadership styleswere found to be similar and their preference lies between phronetic and creative leadership styles.

Keywords: Leadership styles, creativity, phronesis, digital technology

Introduction

Peter coy in the year 2000 introduced term creative economy in article about the transformation from knowledge economy to the economy driven by "the growing power of ideas."Handlingindividualsin traditional style is not productivein today's creative economy where creativity, innovation and learning are the key. In the new leadership paradigm, collaborative learning, trust, communicating and sharing in networks, co-creation, and connecting rather than controlling and commanding is the norm (Jakubik, M., & Berazhny, I., 2017).Up till 1940's the leadership theories were focused on individual characteristics and skills of leaders, up till 1960's the emphasis was on leadership behaviour, up till 1980's the leadership contingent theories were emphasised and up till

2000's inspirational, transformational, motivational and visionary leadership theories were the dominant theories. Now, distributed leadership is the popular theory in this knowledge economy as people has to be coached and inspired rather than command and controlled. (Huczynski and Buchanan, 2007: 694-729).

"They always say that time changes things, but you actually have to change them yourself." (Andy Warhol). In the digitalized world of future, physical and geographical presence will have less significance so leaders of the future will face different type of challenges and they have to recalibrate their leadership practices. Future settings will have more virtual environment for communication, learning and sharing. There will be less hierarchies and less gap between people and workspaces will be

more flexible, mobile, culturally sensitive, multilingual and adaptable (Tshabangu, 2015: 104). "As the leadership paradigm shifts from independence to interdependence, from control to connection, from competition to collaboration, from individual to group, and from tightly linked geopolitical alliances to loosely coupled networks, we need to encourage a new breed of leaders who can respond effectively to such conditions." (Lipman-Blumen, 1996, Burn and Houston, 2015). "This new breed of leaders will work in a digital environment, where communication, science, thinking and reasoning, problem solving, and self-discipline will be important" (Mack, 2015). These leaders will be e-leaders.

Methodology

To gain an understanding ofleadership style and their traits in digitalized era, research literature was reviewed. Based on literature reviewand understanding of the researchers, questionnaire was framed and used for the survey. Chronbach's alpha test was used to access the reliability of the research instrument.There were total 42 questions to test which leadership style was prevalent inengineering colleges of Himachal Pradesh technical University.The population for the research was 232 faculty members of engineering colleges of Himachal Pradesh technical University. Opinion of the respondents weas collected by using Likert scale.One-way ANOVA and post hoc test in which multiple comparison by Tukey HSD test were undertaken to find out whether significant difference exists between different leadership style preferences or not. Thereafter homogeneous subsets was created to find the order of preference of the leadership style in engineering colleges of Himachal Pradesh Technical University.

Leadership styles and their traits in digitalized era

In the digitalized era leaders have to master digital wisdom even when they lack in digital knowledgeand leadership have to be shared and distributed with people, leaders need to be altrocentric. Leaders inspired by power will not succeed in the new world order. Leaderswho focus on people instead of themselves will be more popular. Traditional leaders were focused more on personalized power but in the new world order leadership needs to be altrocentric to extract energy from motivating people rather than controlling people.

In the digitalized world when disruption is the only thing that seems to be constant, the ability of leaders to steer wisely is nearly missing. Therefore, discovering practical wisdom for improving institutional effectivenessappears indispensable for sustainable institutional competitiveness.Phronetic (wise) leaders are needed to create and distribute knowledge in the institutions for common good."Phronetic leaders can judge goodness; can grasp the essence; create shared contexts; communicate the essence; exercise political power; and foster practical wisdom in others" (Jakubik, M., & Berazhny, I., 2017).

In today's volatile environment,successful leaders are those who constantly scan internal and external environment,build commitment,discover possibilities, keeps learning and mobilizes the positive energy of people. "Leaders who are adept at positioning their organizations for future success consistently demonstrate three skills – futurist, strategist and integrator." (Savage, A., & Sales, M., 2008).These leaders areascertained as anticipatory leaders.

In this time of extensive institutional failure, creative leaders are needed.Leaders"who thinks creatively aboutsituations and the way forward, not just around a treadmill" are creative leaders(Stoll, L., & Temperley, J., 2009).At the core of creative leadership lies the notion that these leaders exert their creativity and uses strategy to intensify creativity of others also (Clapham, M. M., 2000).These leaders are imaginative, take risks, push boundaries, acceptambiguity, tolerate unpredictability and disorder (Harris, A., 2009),embrace uncertainty (Nanus, B., 1990) and think outside the box(Tsai, K. C., 2012).Altrocentric, phronetic, anticipatory and creative leadership styles are

the emerging leadership styles in creative economy(Jakubik, M., & Berazhny, I., 2017)which are discussed in detail below.

Altrocentric leadership

Distributive leadership, shared leadership, collaborative leadership, emergent leadership and collective leadership are the similar terms (Bolden, R., 2011). When leadership is shared and distributed with others, it is known as altrocentric leadership (Jakubik, M., & Berazhny, I., 2017). The term altrocentric was coined by Vielmetter and Sell in 2014 to challenge egocentric. "Alter" in altrocentric stands for "other" in Latin. These leaders have main emphasis on others, then on themselves. "Leaders motivated by power over others will not thrive in this new world. We will see more 'altrocentric' leaders, who understand that leadership is a relationship and will, therefore, focus primarily on others rather than themselves. It is a concept of leadership that is more future-fit, more appropriate to cope with all of the challenges deriving from the megatrend storm." (Vielmetter & Sell, 2014).In progressively digitalised world the line separating leaders from followers is increasingly becoming blurred therefore it is needed to shift from egocentric leadership to altrocentric leadership. Institutions have to evolve leaders inspired over altrocentric leadership style. Altrocentric leadership is essential to deal with megatrend storm of digitalization.Truth remains that people do not remain with institutions, they remain with leaders who motivate them, inspire them, are reasonable and stick to values. With these leaders, people will then put an extra effort in their work and institutions will be well placed to succeed in the future (Maroun, N., 2014).

The ecosystem of institutions has changed significantly in COVID-19 pandemic. The changing ecosystem has also arisen the need to recalibrate leadership practices to align with technology for working with data, taking critical decisions, demonstrate flexibility and thinking digitally. Research literature suggests that digital innovations has resulted in evolution

of altrocentric leaders. These leaders are one who recognizes that success is not feasible single-handedly. Therefore, altrocentric leaders relies on liaising with stakeholders (Khan & Ltd, 2022). To easily understand the contextual and relational nature of an interaction is the key distinguishing characteristics of these leaders, hence they can recognize perspectives of every member involved, enabling these leaders to liaison effectively with all stakeholders (Vielmetter & Sell, 2014).These leaders remainin continuous contact with stakeholders(Jakubik, M., & Berazhny, I., 2017, Salicru, 2015: 163-165).

Altrocentric leaders delegate power and create meaning in organizations(Salicru, 2015: 163-165).Their leadership hinges on delegation of authority (Khan & Ltd, 2022).Theydepart away from command and control to leveraging power of people. The key competence of these leaders is to empower people (Das, 2015).These leaders are more focused on engaging than on commanding and controlling. They view themselves as a single component of the whole. They will not personalise the power with them instead will share it with others, they empower others (Maroun, N., 2014).Altrocentric leaders empower people by giving them autonomy (Vielmetter & Sell, 2014).

It is a "leadership model where the leader is not in the center, where leadership is distributed and shared with others. Leaders are aware that they cannot be successful alone, they rely on collaboration, teamwork, they create and enable high-performing teams and communities" (Jakubik, M., & Berazhny, I., 2017,Vielmetter & Sell, 2014).Research literature indicates shift from egocentric (leader centric) leadership to altrocenric leadership to enable collaboration and to create high performing teams (Freitas Junior, J. C., et. el., 2020).These leaders rely on teamwork, collaboration, creating and enabling high-performing communities and teams(Salicru, 2015: 163-165, Khan & Ltd, 2022).Altrocentric leader derives satisfaction and strength from team-building which enables them to handle pressure in a better way (Maroun, N., 2014).

Being empathetic is essential prerequisite for an altrocentric leader, they must have willingness and ability for hearing and understand feelings of people (Vielmetter & Sell, 2014). These leaders act maturely with empathy and integrity (Salicru, 2015: 163-165). They ppossess the willingness and ability to understand, respond and hear the unspoken feelings and thoughts of people as being empathetic is important ingredient of future leaders since they have to attract, understand and retain the increasingly diverse workforce (Das, 2015). Therefore, they lead institutions with strong sense of dedication and commitment and act empathetically with integrity and high maturity (Khan & Ltd, 2022).

Phronetic leadership

Phronesis is a Greek work expressing practical wisdom (Ding, W., et al., 2019). It is ability to judge well in a particular situation. It is practical wisdom and phronetic leaders exercise practical wisdom. Phronetic leaders have refined capability to institutively understand the landscape of responses in an ambiguous situation driven by pursuit of common good. Phronesis helps in arriving at judgment as it is about conduct and has its reference in a particular circumstance. Phronetic judgment may not definitely solve issues, but orient oneself towards best way the issues may be handled (Shotter, J., & Tsoukas, H., 2014). It is important component in "Aristotelian virtue ethics". It is useful for academicians and human resources discipline. It enhances professional excellence of modern leaders and students in professional education (Thomas, S., 2017). Phronetic leadership is a "wise leadership" (Nonaka and Takeuchi, 2011), built by practical wisdom. Phronetic leadership is derived from a specific type of knowledge labelled phronesis by the ancient philosopher Aristotle and refers to the ability to determine and undertake the best action in a specific situation to serve the common good (Martín-de-Castro, G., & Montoro-Sánchez, Á., 2013). This leadership originates from the contributions of Plato and Aristotle. Such leaders just exercise practical wisdom, being aware of the essence. They just

did what they felt like doing for common good embedded on integrity in the absence of any guidelines or handbook for leadership (Brillantes, A., & Perante-Calina, L., 2018). Aristotle's period was making efforts for "love of wisdom" i.e., philosophy where philos means love and sophia means wisdom. He trusted that people are rational and eventually the purpose of life is happiness which can be achieved by leading a good or virtuous life. In Aristotelian philosophy something is good only when the purpose is served. If a person lives virtuous life in congruence with his capabilities and achieves happiness, then he is believed to be good. His moral and spiritual values resemble and is evident in the value system and his personal life. Phronesis facilitates him for good life (Polansky, R. M., 2000). In other words, it is "a specific type of high-quality tacit knowledge acquired from practical experience that enables one to make prudent decisions and take action that is appropriate to each situation, guided by values and ethics" (Nonaka and Toyama, 2007: 378).

Companies, societies and individuals seek wise and sensible decision making in the changing environment. Leaders take final decision to improve performance and productivity and to add value in organizations and societies. Therefore, assessment of leadership traits is important. "Phronesis is based on practical value-rationality and the created knowledge is variable (not invariable) because it is very much a contextand situation-dependent dimension of knowledge and wisdom. It emphasizes deliberation about ethics and values with reference to practical needs." (Vanharanta, H., et al., 2021).

It enables leaders to find right answer for the common good. They pursue common good, create economic and social value and have big picture about the future. They play crucial role in innovation and knowledge creation (Hamaya, S., & Oya, T., 2013). These leaders have comprehensive vision which enables them to think about the environment and the planet at large. They anticipate and recognize causal relations in the system. They use insights to

bring about individual, organizational and operational changes. They identify patterns, make meaning and learn from experiences. They cultivate culture of individual as well as collective phronesis (Kemmis, S., 2012).

Such leaders create an organizational structure which supports them to detect and solve the problems. School leaders frequently face challenging task of creating and sustaining environment for improving students learning. Aristotle calls for visual metaphor for explaining how people develop an "eye" to distinguish certain situations as worthwhile for action that address the problem. Development of "Phronetic eye" is what school leaders require as it can offer precious insight in their practical wisdom. The creation of knowledge base in school leaders will be incomplete until it provides access to practical intelligence of successful leaders of the school (Halverson, R., 2004).

Roughly referred to as ethics, prudence, practical rationality or practical wisdom, phronesis is broadly seen as ability to undertake and determined as finest action in a particular circumstance which serves common good (Eisner, E. W., 2002). It is top grade tacit knowledge build-up by practical experience which enables to make wise decisions and actions suited to the circumstances, guided by ethics and values. Anyone having required technology and necessary finance can manufacture car, but for the user it may or may not be a "good car". The value added by car manufacturer and the user are different. A techne is awareness to make car well whereas phronesis is awareness of what constitute good car i.e., value judgment, and awareness to build that car i.e., realization of value judgment. Value is not universal truth as it is context specific and keep changing. Phronesis is capability to perceive what is judged as good by the user at specific situation and time. Such leaders are capable enough to integrate contextual knowledge gained from experience and universal knowledge accumulated from training (Nonaka, I., & Toyama, R., 2007).

Wise leaders can make judgment build on social values of organization, they can easily make decisions which are good for society and the organization. They have the "Ability to make judgement on goodness" (Nonaka, I., & Takeuchi, H., 2011). Such leaders practice moral sensitivity, aim at collective good and perceive the organization in consonance with society (Vanharanta, H., et al., 2021) and have capability to judge goodness (Hamaya, S., & Oya, T., 2013).Judging goodness is to exercise one's moral sense and judge on practical aspect according to situation. It starts with personal values. Creation of knowledge in company depends on values of goodness, beauty and truth owned by the leader. In absence of a strong, philosophical foundation of values, a person cannot judge on goodness and organization will not be able to add value (Nonaka, I., & Toyama, R., 2007). Founder of Honda Motors Souichiro Honda claimed that strong philosophy is essential for developing technologies as it is the humans who creates technologies for benefit of the society. He said "Philosophy is more important than technologies. Things like money and technologies are merely the means to serve people. There is no meaning in a technology if, at the base of it, it does not consider people. What drives a firm's growth is philosophy. A true technology is a crystal of philosophy. Therefore, even in a research lab, the philosophy of the people who work there should take precedence over the technology" (Honda, 1963). Honda acknowledges that the value of its product is the result of philosophy or value of every person in the organization. The management doctrine of Honda, "respect for the individual" recognizes that each person is unique and this uniqueness is an essential source of value creation (Honda, 1998). The goodness should be judged for all and not what's good for only oneself. This type of judgment needs higher level of vision (Nonaka, I., & Toyama, R., 2007).

Perceiving essence is ability to understand intuitively the real meaning and nature of events, things and people. It is capability to

rapidly sense what rests outside the phenomena and precisely project the future image grounded upon this intuition. By perceiving the situation well and understanding the essence, we can visualize future to determine the required action (Nonaka, I., & Toyama, R., 2007). Phronetic leaders have the "Ability to grasp the essence of particular situation / things" (Hamaya, S., & Oya, T., 2013). Such leaders are enabled with sharp insight, they can easily capture essence of the specific situation. They have the "Ability to perceive reality as it is" (Nonaka, I., & Takeuchi, H., 2011). They are aware of the present business environment and actions required. They clarify the meaning and nature of people, events and things and recognize the essential intuitively. They also see the universal truth from important details and particulars as Aristotle taught us (Vanharanta, H., et al., 2021).Honda said "When I look at a motorcycle, I see many things. I see that I should do such and such to maneuver past the curve. And I think about the next generation machine: I think, if I do this, it will have more speed. . .. I move naturally into the next process" (Honda, 1963). When a person feels universality by virtue of his experience, he sees the trees and the forest simultaneously, which is phronetic experience. By phronesis a person is able to look beyond ordinary and feel the essence (Nonaka, I., & Toyama, R., 2007).

Phronetic leaders have "the ability to share contexts with others to create ba". In Japanese language, ba means place. Here ba refers to platform where knowledge base is created, shared and used. It means space where individual views are directly shared with each other and others' values and views and accepted. To engage in ba implies to involve and transcend our limited perspective. To operate in ba, requires ability to anticipate and understand others feelings. This requires ability to judge the moment and quickly adapt to it, as phronesis is ability to take decision suitable for the situation (Nonaka, I., & Toyama, R., 2007). Such leaders can create environment for sharing in which the members can generate new meaning. They have the "Ability to create Ba (or a community brought together by a set of common interests)" (Nonaka, I., & Takeuchi, H., 2011).Souichiro Honda said "Joking is very difficult. You have to grasp the atmosphere of the occasion and the opportunity. It exists only for that particular moment, and not anywhere else. The joke is in the timing and it doesn't work at any other moment. To joke is to understand human emotion" (Honda, 1963, pp. 56–57). Phronetic leader must have ability to get involve and nurture sharing in members of ba. For ba, social asset of love, trust and caring must be nurtured. In such an environment people transcend themselves and starts connecting with others (Nonaka, I., & Toyama, R., 2007). Wise leaders build learning environment in organizations in which interactions are initiated and relationships strengthened (Vanharanta, H., et al., 2021).Such leaders have the "Ability to share contexts with others to create the Ba and shared sense in a timely manner" (Hamaya, S., & Oya, T., 2013).

Phronesis is "the ability to reconstruct the particulars into universals and vice-versa using language/concepts/narratives". It requires insight which is beyond simply practical knowledge. It needs ability to feel universality to decide best way of action required for common good. Even when a person grasps the essence and conceives it, the idea remains hidden until it is communicated. The essence is required to be conveyed in universal language which everyone understands and gets motivated. It needs strong imagination and profound ability to communicate future vision which captures imagination of people efficiently by story-telling, analogy or metaphor. Fujio Mitarai, CEO Canon interacts with his employees in annual visits to all the Canaan factories in a way that is easily understood. In these visits he meets and interacts with all the employees in every smaller branches. During these interactions he gains contextual knowledge used for decision making (Nonaka, I., & Toyama, R., 2007). Such leaders have excellent verbal ability and exceptional communicating skills, they use

stories and metaphors for changing experiences to tacit knowledge. They have the "Ability to articulate the essence" (Nonaka, I., & Takeuchi, H., 2011).They present big picture of organizations and communicate in a way easily understandable to others. They use metaphors and storytelling effectively and have capability to understand interrelationship between thing. They understand present, past and future visions. They easily communicate with employees. They clearly indicate their commitment and engagement with members and the organization (Vanharanta, H., et al., 2021).Such leaders have the "Ability to reconstruct the particulars into universals using languages / concepts / narratives" (Hamaya, S., & Oya, T., 2013).

"Political power is the ability to understand the full complement of contradictions in human nature—good and bad, optimism and pessimism, civility and uncivility, diligence and laziness—and to harmonize them in a timely fashion as each situation arises. It has been said that personal magnetism is hard to describe but those who possess it have, in their own way, embraced the contradictions associated with human nature" (Iizuka, A., 2003).After identifying essence, sharing it, and communicating it, people must be brought together and put into action by synthesizing and combining their efforts and knowledge to achieve the goal. To mobilize people for achieving common good, wise leaders need to choose every means that is suitable to a particular situation which may sometimes include shrewdness and Machiavellian means (Badaracco, L., 1997). The dialectical method for reaching the target is political which is driven by ability to create political judgments. Wise leaders exert political judgment, understand emotions of people around them in verbal as well as non-verbal means and give thorough attention to timing of interaction with people (Steinberger, P. J., 1993). Such leaders have strong collective consciousness and powerful policy enforcement, they apply political power for bringing members together. They have the "Ability to exercise political

power" (Nonaka, I., & Takeuchi, H., 2011).Mitarai, Canon President exerted political power for transforming Canon. He minimized gaps among divisions, synchronized production, sales and research to accelerate development of products and pulled out from unprofitable businesses. In this course of action, he maintained communication with labor union and employees. In this transformation process, Mitarai acknowledges frequent communication as the key for persuading and convincing people for their active participation (Mitarai and Niwa, 2006). These leaders have the "Ability to use any necessary political means well to realize concepts for the common good" (Hamaya, S., & Oya, T., 2013). They unite people using any means for taking actions appropriate to the circumstances and understand human character both pessimist and optimism, good and bad, laziness and diligence, incivility and civility. They command dialectical thinking to easily deal with, contradictions, dichotomies, paradoxes and opposites. Using insights, envisioning and imagination they reach at top conceptual levels (Vanharanta, H., et al., 2021).

Leaders has remarkable impact in the creation of knowledge in organizations, but this aspect is usually ignored and viewed as marginal variable. Phronetic leader or wise leader are new leaders promoting creation and diffusion of knowledge in the organization (Martín-de-Castro, G., & Montoro-Sánchez, Á., 2013). Phronesis cannot be implemented by some selective leaders only, it has to be distributed and embedded in the entire organization as per the need of the situation (Halverson, R., 2004) which will ensure the resilience of organization to respond creatively and flexibly in all situations for pursuing goodness (Nonaka, I., & Toyama, R., 2007). Phronetic leaders facilitate diffusion of practical intelligence or wisdom to members of the organization so that they may use wisdom. Organizations can then easily respond creatively and flexibly to any circumstance and change (Vanharanta, H., et al., 2021).Such leaders have ability to guide and cultivate others towards practical wisdom. They

have the "Ability to foster phronesis in others" (Nonaka, I., & Takeuchi, H., 2011).Ability to nurture phronesis in others enables an organization to cultivate next generation employees. It enables organization to set out issues to be handled and to create ba for peak experience and creative exchange (Maslow, A. H., 1970) and phronetic leaders have the "Ability to foster practical wisdom in others to build a resilient organization" (Hamaya, S., & Oya, T., 2013). For this it is essential to present clear-cut examples for inculcating phronetic approach in thinking. People can easily learn phronesis through practice, mastered by interaction (Nonaka, I., & Toyama, R., 2007).

Anticipatory leadership

Anticipation is different from guessing or prediction. Prediction is mathematical probability whereas anticipation is mathematical notion of possibility. Good and bad leaders get distinguished by the way they anticipate various aspects of work like the goalkeeper prevents defeat by anticipating direction and speed of ball (Nadin, M. I. H. A. I., 2008). Anticipatory leadership is about "anticipating the future" (Ratcliffe, J., & Ratcliffe, L., 2015). In broader sense, anticipatory leaders should have ability to sense future. These leaders are blessed with ability to visualize broader aspect of future probability. Such leaders negate any threats and capitalize the opportunities present to guide organizations in challenging situations and achieve positive outcomes (Direction,n.d.). Anticipatory leaders as futurist aware themselves about wide ranging current trends and events. As strategist they sharpen their idea of opportunities, strengths, threats and weakness and as integrator of emotions, ideas and beliefs they remain continuously engaged with people, identify opportunities and align resources for common shared objective (Savage, A., & Sales, M., 2008).Leaders should anticipate change by scanning internal and external environments and act for the continuous improvement of organization (Cloud, R. C., 2010).Quintessentially, leadership is more

about anticipating future. Leaders need to appreciate systems thinking, complexity and risk (Ratcliffe, J., & Ratcliffe, L., 2015). Anticipatory leaders systematically and regularly scan and analyse information on unfamiliar and wide-ranging topics, they expose themselves to perspective enhancing and unique experiences. Anticipatory leaders are eager and willing to look beyond known, they constantly imagine about how the future might unfold and are not stuck on particular view of future but are flexible on alternative versions also. They believe that a different future could unfold and they have the flexibility to be critic about their own mental model of how world works (Savage, A., & Sales, M., 2008). These leaders are relentless learner of new emerging trends. They process skills for explaining and understanding how the interaction between external forces shapes the organization, and they analyse the resultant microtrends and patterns (Penn, M., 2007). Such leaders focus on looking beyond obvious, familiar or immediate to gain deeper understanding of dynamics of organization's environment. Such leaders keep eye on worldwide markets, sciences and industries for any significant developments. They do extensive survey of emerging trends. They possess knowledge of patterns in daily events and are aware of dynamics of external forces that shape organization (Direction, n.d.).

Knowledge is power, as a strategist, anticipatory leaders have ability to exploit knowledge, awareness and insight to detect any emerging opportunities. Such leaders make new combinations from apparently incongruous elements. They have long term perspective. They use structural insights for shaping organizational collaboration and communication which helps in developing powerful strategies to dominate market share. They simplify broad and complex theories in simple steps to shape and influence routine activities (Direction, n.d.).Anticipatory leaders produce desired results by effectively leveraging insights. They easily set overall direction of a group. They take effective

approach to focus attention beyond short-term and immediate pressure. They enjoy interpreting how reality is transpiring itself and what impact will it have on the future events. They have ability to establish a system to foresee how outcomes and events could appear in varied circumstances. They create policies which supports long-term thinking, recognition and incentive system, structures, workplace design and align assets to realize strategic intent(Savage, A., & Sales, M., 2008). Such leaders use structural insight for communicating, they collaborate with people to formulate market dominating strategies. They understand dynamics of organization which allows organizations to adapt, to minimize the threat or create opportunities (Savage, A., & Sales, M., 2008).

Whole is greater than sum of individual parts, as an integrator, anticipatory leaders engage people in a meaningful communication. Displays compassion and genuine interest in concerns, needs and opinions of others and is eager and willing to invite feedback and inputs from any sources (Direction, n.d.). Altrocentric leaders reframe thinking of people so as to make them aware of alternatives in a situation. They value, seek and take advantage of all the positive energy and good ideas in system. They are comfortable in getting feedback from people, coaching others and getting coached. They have skill to work with people in a manner that they achieve required results and gain experience to grow further. They possess positive vision, align people with own social vision, and demonstrate how this vision will move them and organization ahead. They are highly responsive and accessible to people. They value contributions, admire and find good qualities in people, assume positive intentions even in adverse situations. They are willing to learn from anyone irrespective of level, social position or function and take pleasure from others achievements(Savage, A., & Sales, M., 2008).Anticipatory leaders engage organizations in mutual discovery and dialogue. They are not mere observers but also rational analysts. They show compassion and genuine interest in concerns and views others. They know to honour the feelings and thoughts of people (Kouzes, J. M., & Posner, B. Z., 2011).

Creative leadership

Present time is full of huge institutional failures presenting leaders with challenges which call the need for creative leadership (Sisk, D. A., 2013). Creativity is important for performance and ultimately survival of many organizations (Palanski, M. E., & Vogelgesang, G. R., 2011).Creativity is production of useful and novel ideas (Sun, L. Y., et al., 2012). Creative leadership was defined as "the capacity to think and act beyond the boundaries that limit our effectiveness" (Center for Creative Leadership, 2016).

It refers to "leading others towards the attainment of a creative outcome" (Mainemelis, C., et al., 2015), it is "a state of mind in which all of our intelligences are working together. It involves seeing, thinking and innovating. Creativity can be demonstrated in any subject at school or any aspect of life. Creative people question the assumptions they are given. They see the world differently, are happy to experiment, to take risks and to make mistakes" (Lucas, B., 2001).Creative leaders are "leader who synthesizes his or her own creative work with the heterogeneous creative contributions of other professionals" (Mainemelis, C., et. al., 2015). Creativity was defined as (Harris, A., 2009):

(a) Using insight, originality and imagination.
(b) Using higher level knowledge, skill and qualities.
(c) Capability to improve, make difference, enrich or enhance.
(d) Value addition of existing process or product.
(e) Development of new process, product or outcome. Such leaders set climate, conditions and tone to flourish creativity.

Creativity is an important aspect of leadership. Erstwhile, creativity was perceived to be an optional phenomenon of leadership but in today's context it does not remain as an optional

factor. Divergent thinking, creative intelligence, attitude and skills have positive corelation with the success of leaders. A leader lacking in creativity will go with stale or inferior ideas (Sternberg, R. J.,Sternberg, R. J., 2007). "Creative leadership entails the art of building institutions that embody new and enduring values, and the creation of the conditions that will make possible in the future what is excluded in the present" (Selznick, P., 2011).

Creativity is production of original ideas (Baer, M., 2010). Critical thinking requires renunciation of old thinking and confrontation of established patterns, beliefs and mindsets (Harris, A., 2009). Creative leaders make people think out of the box (Tsai, K. C., 2012). They think, see and do things differently. They provide opportunities, environment and conditions to people to display their creativity. Environment full of new experiences and ideas is essential for stimulating creativity. To be creative, people must be exposed to new ideas, creative people, opportunities to think in different ways at their workplace. New ideas are the life blood of any institution (Stoll, L., & Temperley, J., 2009).Out of box thinking and experimentation is vital for creative endeavors (Kark, R., et al., 2018).Creative thinking in effective leaders is a widely identified phenomenon (Leijnen, S., & Gabora, L., 2010). Most remarkable skill a leader must have is creative thinking and ability to stimulate creativity (Harding, T., 2010). Creativity is "the development of useful and novel ideas that deviate substantially from the status quo" (Venkataramani, V. et al., 2014). To broaden the attitude, knowledge and skills, to adapt to complex, interdependent and changing world, creative leaders provide opportunities, conditions and environment to people for being creative (Sisk, D. A., 2013). Creative leaders influence others to maximize and realize their talent (Harris, A., 2009). To be successful, they need to have the capability to inspire creativity in people (Ibbotson, P., & Darsø, L., 2008). Lack of creativity in leaders makes it difficult for them to evaluate others' ideas. Such leaders

guide people for attainment of creative outcome (Mainemelis, C., et al., 2015).

Creativity is mental state achieved when whole of our intellect is focused together. Creative leaders view world differently and question the status quo. They encounter problem with different approach. They fearlessly experiment and feel comfortable making mistakes (Sisk, D. A., 2013).Creative arises by trying things out, thinking and acting differently, making mistakes and being experimental. It is genuinely and fundamentally concerned about generating new possibilities by challenging instead of reproducing status quo (Harris, A., 2009).Out of box thinking and experimentation is essential for creative ventures (Kark, R., et al., 2018).

Literature confirms that creative idea generation is frequently associated with nonconformity, uncertainty, unconventionality and unorthodoxy (Mueller, J. S., et al., 2011). In organizational environment, restrictions of time, demand and resources imposes challenges in problem solving. Creatively solving problem in this complex and uncertain environment is hallmark of these leaders (Tsai, K. C., 2012).With globalization and technological superiority, critical changes lead to ambiguity and uncertainty towards future. Creative leaders recognize these dynamics and lead the organizations forward into better direction (Tsai, K. C., 2012) as they "embrace this uncertainty because it opens up new possibilities and opportunities" (Nanus, B., 1990). Creative leaders are imaginative and insightful to challenges and opportunities present in an organization (Stoll, L., & Temperley, J., 2009). They think outside accepted and usual frame of reference and have unique ways of interpreting, seeing, questioning and understanding. They have ability to accept ambiguity, uncertainty and contradictions and can tolerate unpredictability and disorder. They succeed in disruptive and chaotic circumstances (Harris, A., 2009).As have willingness to tolerate long period of ambiguity and uncertainty. Leader missing at creativity will find it difficult to deal with new,

unexpected, uncertain and novel situations (Sternberg, R. J.,Sternberg, R. J., 2007). That is why creativity is generally accompanied with risk taking and ambiguity tolerance (Kark, R., et al., 2018).

Leaders must advocate, roll model, lead people through modelling. People will not take risks or experiment with new creative ideas if their senior leaders are cautious (Stoll, L., & Temperley, J., 2009). Creativity is generally accompanied with risk taking and ambiguity tolerance (Kark, R., et al., 2018). Creative leaders know that taking risk is an important aspect (Oliver, J. D., & Ashley, C., 2012). They

recognizes the importance of taking sensible risks for their success (Sternberg, R. J.,Sternberg, R. J., 2007)that is why they have risk taking ability (Harris, A., 2009).

Reliability statistics

Chronbach's alpha test was used to estimate internal consistency or reliability of the data. Its overall value for all the four leadership styles came out to be 0.959,indicating excellent internal consistency of the data. The summary of Cronbach's alpha value of all the leadership style along with no of items in each leadership style is given in table 1.

Table 1: Test of reliability of instrument

Leadership styles	Cronbach's Alpha	No of Items
Altrocentric leadership style	.865	14
Phronetic leadership style	.929	10
Anticipatory leadership style	.908	8
Creative leadership style	.906	10
All of the above leadership styles	.959	42

Data analysis

Table 2 depicts the average score, standard deviation and standard error for all the leadership style preferences in the engineering

colleges of Himachal Pradesh Technical University. Average score is highest for phronetic leadership style and lowest for creative leadership style.

Table 2: Descriptive for leadership style preferences

Leadership style	N	Mean	Std. Deviation	Std. Error
Altrocentric	232	5.5887	.65084	.04273
Phronetic	232	5.9759	.74014	.04859
Anticipatory	232	5.6563	.73981	.04857
Creative	232	5.2940	.85293	.05600
Total	928	5.6287	.78647	.02582

One-way ANOVA

One way analysis of variance (ANOVA) is used to identify whether there exists any statistically significant difference between means of different leadership style preferences or not. It is an omnibus test statistic and cannot tell which specific groups are statistically significantly different from each other, rather it only tells us that means of at least one pair of leadership style preference is different. That is

why one way ANOVA is often followed by post hoc test which indicates which pair of leadership style preferences are significantly different from each other. The following hypothesis is generated for statistical testing:

H_0 = Population means of all the four leadership style preferences are equal.

H_1 = At least one population mean of the four leadership style preferences is different from the rest.

F statistics (ANOVA result)

In the case of group means based model, when group means are same, then value of F will be small and ability to interpret data will be poor and when group means are different, data can be discriminated in a better way, and we have high value of F. Therefore, F indicates whether group means are same or different. In table 3 we have to check whether value of F in between groups row reaches significance. The value of

F is 32.353, which reaches significance with a p-value of 0.000 (which is less than the 0.05 alpha level). This means there is statistically significant difference between means of four different types of leadership style preferences. Hence, we reject H_0 and accept H_1.

H_1 = At least one population mean of the four leadership style preferences is different from the rest.

Table 3: ANOVA for leadership style preference
Leadership style preference

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	54.504	3	18.168	32.353	.000
Within Groups	518.875	924	.562		
Total	573.379	927			

However, so far, we could not recognize that between which leadership styles there exists a significant difference. For this post hoc Tukey HSD test is carried out.

Post Hoc Test

Post hoc test is carried out to compare all the leadership styles with each other. In multiple comparison table 4, significance values are generated for differences in means between different pairs of leadership style preferences. The p-value is noted at 0.05 alpha level. In table 4, asterisks in the mean difference column indicates existence of statistically significant difference between e-leadership style preferences. Plus and minus symbol indicates which group is better, the plus symbol means that first group is better than second and vice versa. Tukey HSD (Honest Significant Difference) test indicates that the means are

statistically significantly different for the following pair of e-leadership style preferences:

(a) Altrocentric leadership style and Phronetic leadership style
(b) Altrocentric leadership style and Creative leadership style
(c) Phronetic leadership style and Anticipatory leadership style
(d) Phronetic leadership style and Creative leadership style
(e) Anticipatory leadership style and Creative leadership style

And means of the following pair of leadership style preferences are not statistically significantly different:

(a) Altrocentric leadership style and anticipatory leadership style

Table 4: Multiple comparisons of leadership style preferences
Dependent variable: leadership style preference
Tukey HSD

(I)E-leadership style	(J) E-leadership style	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Altrocentric	Phronetic	-.38719*	.06958	.000	-.5663	-.2081

	Anticipatory	-.06758	.06958	.766	-.2467	.1115
	Creative	.29470*	.06958	.000	.1156	.4738
Phronetic	Altrocentric	.38719*	.06958	.000	.2081	.5663
	Anticipatory	.31961*	.06958	.000	.1405	.4987
	Creative	.68190*	.06958	.000	.5028	.8610
Anticipatory	Altrocentric	.06758	.06958	.766	-.1115	.2467
	Phronetic	-.31961*	.06958	.000	-.4987	-.1405
	Creative	.36228*	.06958	.000	.1832	.5414
Creative	Altrocentric	-.29470*	.06958	.000	-.4738	-.1156
	Phronetic	-.68190*	.06958	.000	-.8610	-.5028
	Anticipatory	-.36228*	.06958	.000	-.5414	-.1832

*The mean difference is significant at 0.05 level.

After one-way ANOVA and multiple comparison by Tukey HSD test were undertaken, significant difference was found between different leadership style preferences. Thereafter in table 5, three homogeneous subsets were created, with creative leadership style in first subset, altrocentric leadership style and anticipatory leadership style in second subset and phronetic leadership style in third subset. Therefore, it is concluded that phronetic leadership style is the most prevalent leadership style in engineering colleges of HPTU.Creative leadership style is the least prevalent leadership style in the engineering colleges of HPTU.Altrocentric leadership style and Anticipatory leadership styles are similar and their preference lies between phronetic and creative leadership styles.

Table 5: Homogeneous subsets for leadership style preferences
Leadership style
Tukey HSD[a]

E-leadership style	N	Subset for alpha = 0.05		
		1	2	3
Creative	232	5.2940		
Altrocentric	232		5.5887	
Anticipatory	232		5.6563	
Phronetic	232			5.9759
Sig.		1.000	.766	1.000

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 232.000.

Conclusion and future research direction
As modern society is increasingly becoming dependent on the technology, it is important for leaders to take advantage of digital technology to create education institutes which are more meaningful and relevant.As a phronetic leader in engineering institutes of HPTU, leadersunderstand the current institutional situation and focuses on the actions required. They unite people. They are committed with the employees and the institute and emphasize on practical wisdom and educate others about its use. They have good values and strong principles and make ethically strong decisions. They understand the viewpoint and emotions of others, are morally sensitive and focuses on common good. As an altrocentric leaderin engineering institutes of HPTU, leaders are easily approachable and supportive. They frequently interact with people and appreciates

their knowledge and contribution. They invite inputs from everyone for the important institutional decisions. They believe in teamwork rather than the individual task and establishes good connections with people. They are trustworthy, reliable and fulfills the promises. In the role of anticipatory leadersin engineering institutes of HPTU, they are easily accessible and quick responsive to others. They engage everyone in meaningful communication at work. They are able to predict potential moves and likely reactions to new initiatives. However, they lack in judging opportunities and threats of the future. In the role of creative leaders, leaders find certain constrains such as lack of financial and administrative autonomy in institutions. In Government institutes the processes are slow with lot of bureaucratic barriers and in private institutes there are financial constraints which leaves less space for taking initiative and experimentation, instead more emphasis is given to compliances. Leaders here don't like to take risk and challenges.

It has been realized that creativity is a skill that will take educational institutes into the future, therefore, research can be carried out in identifying factors that act as barrier to the leaders to be creative in engineering institutes.Today's leadership is no different from the leadership of the past, but it has to be tuned with the changing reality of digitalization. Research can also be carried out to find the important traits of leaders which they should process to be successfulin engineering institutes in digitalized era. Study can also be undertaken to identify the interaction betweendigital innovation and its impact onleadership styles.

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