



The Influence of Green-Transformational Leadership Style on Corporate Sustainability: A Systematic Literature Review and Propositions for Future Studies

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Abstract

The green transformational leadership (GTL) type adopting green values is an important internal resource and capability of the corporations in terms of environmental sustainability. This situation rationalises why the GTL needs to be deeply explored and comprehensively developed. Therefore, it is very important to analyse the studies on GTL and to classify existing studies collecting as titles with an interpretive approach. In this study, it has been proposed that with an integrative systematic literature review, both the situation of present knowledge about GTL will be described and future research agenda is to be suggested. In direction of this aim, the subjects analysed are national context, method, economic sector, research focus, mediator variable of research and the position of GTL in the analytical model. Results show that most researchers conduct their research on developing countries, and usually prefer quantitative methods and mostly discuss GTL style as drivers of employees' green behavior at work. A future research agenda with six propositions is made by evaluating basic theoretical gaps in the field.

Keywords

Green transformational leadership, Green behaviour at work, Green creativity, Green performance, Integrative literature review

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Introduction

Industry, beyond all questions, has contributed to social welfare by providing high quality products adapted to human needs. However, existing production models are not environmentally sustainable (McWilliams *et al.*, 2016). In this respect, society, public sector and non-governmental organizations require the industry sector to make economically, socially and environmentally sustainable productions (McWilliams *et al.*, 2016; Sarkis & Zhu, 2018). It has been seen that the production when it only focuses on the products, results in unequal wealth distribution, poor work environments, exhaustion of environmental stocks and excessive environment exploitation. Global climate change representing one of the most important environmental problems forms a big risk for human health and natural systems (Kovats & Akhtar 2008; Punyatoya, 2014). Data obtained by the Global Footprint Network as of 2019 also shows that the natural resources produced by the planet in 12 months are consumed in 7 months and during the rest of the year, we get indebted with natural resources of 2020 (Yesilist, 2019). The only goal to fight global climate change for human beings today is to decrease global heat increase to below 2 degrees (Peskircioglu, 2016). To be able to reach this critical goal, it is necessary to decrease the usage of fossil fuel, use renewable energy resources, adopt energy fertility as a production philosophy, change consumption habits and prevent wastage (Ozgul & Mengi, 2016). As it is seen, the welfare bet of the human being has undervalued real limits of the biosphere and provided for the sustainability of our consumption and production systems (Bonilla *et al.* 2013).

According to Robbins (2001), companies are responsible for almost %50 of global greenhouse gas because of their activities. As known, this greenhouse gas causes global warming, acid rains, smoke and health problems for humans and other beings in the world. For Natrass & Altemore (2002) *“If we keep our current way, we are going to plant seeds of our own end”*. From this point of view, to be able to make the world fit to live in and to always use nature, it is quite clear that there should be changes in production and consumption models. According to Senge *et al.*, (1999) *“sustainable development cannot be realized without innovation, and innovation can be obtained in a culture which embraces and feeds learning and changing in the best way”*. In this context, corporations of the era should make *“being green”* a philosophy, even a lifestyle. Corporations with this awareness consciousness adopt environmental management systems (such as EMAS or ISO 14001) which aim to perform green processes and applications (Gotschol, De Giovanni & Esposito Vinzi, 2014). But leaning on these systems is not seen as enough to deal with threats created by climate changes (Robertson & Barling, 2013). In the world, it is generally accepted that global climate change is mainly formed as a result of human activities (Gbadegesin, Olorunfemi & Raheem, 2011), and the achievement of corporations' environmental activities are mainly connected with the employees' behaviours (Paillé, Boiral &

Chen, 2013; Lewis, Walls & Dowell, 2014; Dubey, Gunasekaran & Ali, 2015; Del Giudice & Della Peruta, 2016). According to Wehrmeyer (1996) *“If a corporation is to adopt an environmentally-aware approach to its activities, the employees are the key to its success or failure”* (Muster & Schrader 2011). Therefore, in order to fight climate change, it could be said that employees should be directed to green behaviours (Paillé & Boiral, 2013). Green behaviour is conceptualized as a large activity group which is sensitive to the environment, like developing green processes and products, developing and applying ideas for reducing the corporation’s environmental impact, giving importance to recycling and reusing, and questioning practices that is harmful to the environment (Graves, Sarkis & Zhu, 2013).

Literature on corporate sustainability shows that a leader is needed for the achievement of environment management systems (Ramus & Steger, 2000; Egri & Herman, 2000; Guest & Teplitzky, 2010; Robertson & Barling, 2017; Zhou *et al.*, 2018; Robertson & Barling, 2018). In particular, it is emphasized that environmental leaders are more prone to GTL style (Egri & Herman, 2000). Researchers bring forward the fact that GTL behaviour plays an important role to be able to direct the employees to green behaviour (Graves, Sarkis & Zhu, 2013; Robertson & Barling, 2013; Kura, 2016; Hadi & Rasoll, 2017; Graves & Sarkis, 2018). The concept of GTL is described as a behaviour style that motivates its followers to reach environmental goals and inspires them to perform beyond expected environmental performance levels (Bass 1998; Gardner & Avolio, 1998; Chen & Chang, 2013; Mittal & Dhar, 2016).

Resource based theory puts emphasis on the importance of intangible assets and capabilities of corporations (Barney, 1991). According to this theory, leadership behaviour is accepted as being one of the corporations’ internal resources and capabilities (Hart, 1995; Leroy *et al.*, 2018; Singh *et al.*, 2020). According to the resource-based view GTL behaviour is one of the valuable resources and capabilities of a corporation. For this reason, this study aims at discussing literature about GTL and making it systematic, combining the information already developed and at the same time contributing to future research agenda. Detailed literature review has been carried out with the aim of putting forward the contribution of GTL in implementing the aims devoted to environmental sustainability. Complementarily, certain research aims have been described: to code and classify studies selected according to their features; to analyse the contribution of each research, to summarize and organize; and to specify basic theoretical gaps about the subject. In the direction of this aim, the subjects analysed are national context, method, economic sector, research focus, key mechanisms to explain the focus of the research and the position of GTL in the analytical model.

Methodology

Research procedures, coding, and classification

An integrative systematic literature review is a specific investigation method which is performed to provide a more comprehensive understanding about a certain phenomenon and to summarize empirical and theoretical literature of the past (Broome, 1993). A well performed integrative systematic literature review presents the present situation of science and contributes to the development of the theory (Whittemor & Knafl, 2005). Although many researchers have successfully used an integrative systematic literature review method (for example, Lages Junior & Godinho Filho, 2010; Jabbour, 2013; Pacheco & Liboni, 2017; Salim, Ab Rahman & Abd Wahab, 2019), this review method has not yet been applied to the subject of GTL. The steps in Table 1 have been followed in this study to systematically integrate present literature about GTL (Lages Junior & Godinho Filho, 2010; Pacheco & Liboni, 2017).

Table 1
Integrative systematic literature - steps

Research Steps	
Step 1.	To make advanced research on present articles about GTL through academic databases.
Step 2.	To recommend a classification and logic coding system for the selected articles.
Step 3.	To use the recommended classification system to enable the present information about GTL to be understood as simplified.
Step 4.	To develop a summary from the recommended coding about the scientific production and primary results of the articles identified and selected.
Step 5.	To analyse results obtained, to evaluate the existence of theoretical gaps and opportunities to carry out future studies.

In order to combine the conclusions of many independent researches made on GTL, literature review has been conducted by searching the keywords “green transformational leadership”, “environmental transformational leadership” and “environmentally specific transformational leadership” on Web of Science, Science Direct, Scopus and Google Scholar databases. The due date for researchers included in the study has been determined as February 2020. In this study, 24 downloadable articles have been selected and evaluated. In the second stage, a classification framework is proposed for the classification and coding of selected and evaluated GTL studies. This classification framework consists of 6 main themes numbered from 1 to 6, and each classification number is coded using alphabetical letters. The classification and coding system of GTL studies has been made as in Table 2.

Table 2

Characterization framework synthesizing current research for GTL

Classification	Detailing	Codification
1	National Context	A – Developed country
		B – Developing country
		C – Multiple countries
		D – Does not apply
2	Method	A – Quantitative
		B – Qualitative
		C – Literature Review
		D – Case Study
		E – Survey – primary data
		F – Survey – secondary data
3	Economic Sector	A – Manufacture
		B – Services
		C – Does not apply
4	Research Focus	A – GTL as driver for green behaviour at work
		B – GTL as driver for green creativity
		C – GTL as driver for green performance
5	Key Mechanisms To Explain The Focus Of The Research	A – Green climate
		B – Green human resource management
		C – Green self-efficacy- Green mindfulness
		D – Internal (Autonomous) motivation
		E – External motivation
		F – Employees’ green passion
		G – Proactive environmental strategy
		H – Value congruence
		I – Environmental concern
		J – Environmental orientation
		K – Environmental belief
		L – Green organizational identity
		M – Employees’ harmonious habitation of the environment
		N – Does not apply
6	Position In Analytical Model	A – Dependent variable
		B – Independent variable
		C – Moderator variable

“A - D” codes in 1st group show development level (according to the classification proposed by the United Nations) (Nielsen, 2011) and number of country in which the research has been performed (Jabbour, 2013; Mariano, Sobreiro & Rebelatto, 2015); “A - F” codes in 2nd group show method and scope of the research (Lages Junior & Godinho Filho, 2012); “A - C” codes in 3rd group show the economic sectors in which the research has been performed (Jabbour, 2013); “A - C” codes in 4th group show the subject that the research focuses on (Jabbour, 2013); “A - N” codes in 5th group show

key mechanisms that explain the impact of GTL style on green behaviour at work, on green creativity and on green performance; and “A - C” codes in 6th group show the position of GTL in the analytical model (Jabbour, 2013). First classification framed as GTL as driver for green behaviour at work with A code in 4th group classifies the researches that discuss the role of GTL in encouraging the employees in workplaces for green behaviour. The second classification with B code framed as GTL as a driver for green creativity, brings researchers in the direction of understanding the role of GTL in development of green creativity of employees, together. The third classification with C code framed as GTL as driver for green performance, classifies the research that discusses the role of GTL style in development of green performance of enterprises. Table 3 presents a synthesis with the main contributions of 24 articles structured together with descriptive analysis to produce the discussions and conclusions presented in the next section. Thus, the scope and principal conclusions are clarified.

Table 3
Brief summary of the results of the analysed studies

	Theory	Keys Finding
Chen, & Chang (2013)	Resource based theory Transformational leadership theory	GTL positively influences green creativity and green product development performance. The positive relationships between GTL and green product development performance—are partially mediated by green creativity.
Graves, Sarkis & Zhu (2013)	Self-determination theory	GTL has a strong, direct positive relationship with employees’ pro-environmental behaviour. GTL is positively related to the employee’s autonomous and external motivation. Autonomous motivation is in positive connection with employees’ pro-environmental behaviour, it is seen that the relationship between external motivation and employees’ pro-environmental behaviour is moderated by GTL.
Robertson & Barling (2013)	Transformational leadership theory Social comparison theory Social learning theory	Leaders’ environmental descriptive norms positively affect their GTL and leaders’ pro-environmental behaviours. Besides, both the GTL and leaders’ pro-environmental behaviours create positive effects on employees’ environmental passion, and employees’ pro-environmental behaviours are positively affected from this situation.
Chen, Chang & Lin (2014)	Transformational leadership theory Self-determination theory	GTL positively affects green mindfulness, green self-efficacy and green performance. Green mindfulness and green self-efficacy act as partial mediators to the positive relationship between GTL and green performance.
Kura (2016)	Theory of planned behaviour	Environmental concern plays a mediating role between GTL and green behaviour at work.
Mittal & Dhar (2016)	Organizational identity theory	Green organizational identity is a partial mediator for the relationship between GTL and green creativity and when the corporations’ sourcing commitment is high, the positive effect of green organizational identity on green creativity increases.

Robertson & Barling (2017)	Transformational leadership theory	Two studies have been conducted that compare construct validity and incremental predictive validity of GTL to general transformational leadership. The results of a confirmatory factor analysis revealed that green and general transformational leadership were empirically different but related. The results of the experimental study showed that compared to general transformational leadership and a control condition, participants exposed to GTL exhibited higher levels of pro-environmental behaviours.
Robertson & Carleton (2017)	Social learning theory Theory of normative conduct Personality theory	GTL style has a strong, direct positive relationship with employees' voluntary green behaviours. Employees' perceptions of their co-workers' pro-environmental climate is a partial mediator for the relationship between GTL and employees' voluntary green behaviours. Internal environmental locus of control moderates the indirect effects of GTL style on employees' voluntary green behaviours.
Hadi, & Rasool (2017)	Self-determination theory Transformation leadership theory	Researchers have developed a conceptual frame that they have pointed out that there would be a positive sided meaningful relationship between GTL style and employee pro-environmental behaviours and in this relationship, autonomous motivation would take the mediator role.
Zafar et al. (2017)	Transformational leadership theory Social cognitive theory	GTL positively affects green mindfulness, green self-efficacy and green performance. Green mindfulness and green self-efficacy act as partial mediators to the positive relationship between GTL and green performance.
Wang, Zhou & Liu (2018)	Transformational leadership theory Identity theory	Value congruence plays a mediator role in the relationship between GTL and green behaviour at work and this mediator could be managed according to green identity.
Robertson (2018)	Transformational leadership theory, Environmentally specific-transformational leadership	Four studies have been conducted to develop and validate a survey for the measurement of GTL. These studies demonstrate that GTL explains incremental variances in employees' pro-environmental behaviours above the concept of general transformational leadership. In addition, these studies have displayed the importance of measuring GTL in the context of corporate responsibility. GTL and general transformational leadership are conceptually different but related.
Maziriri & Saurombe (2018)	Human capital theory Natural resource-based theory Green theory	GTL style has a positive and significant effect on employee's harmonious habitation of the environment. However, in this study as different from the others, it is seen that the same positive and significant relationship is not maintained between GTL and employee's green behaviours.
Jia et al. (2018)	Ability-motivation-opportunity theory Transformational leadership theory	GTL style develops green creativity by encouraging green human resources management. There is a positive meaningful relationship between GTL and employees' green passions. Moreover, green passion acts as a mediator for the relationship between GTL and green creativity.

<p>Graves & Sarkis (2018)</p>	<p>Self-determination theory</p>	<p>GTL has a positive effect on both internal and external motivation of employees and on basic and advanced green behaviours of employees. When employees' environmental values are weak, there is little association between GTL and internal and external motivation. Employees' environmental values create positive effects on internal motivation of employees, and basic and advanced green behaviours of employees are positively affected from this situation. The environmental values of employees have a weak and positive relationship with external motivation of employees. The relationship between external motivation of employees and basic green behaviours of employees are not significant.</p>
<p>Zhou, Zhang, Lyu & Zhang (2018)</p>	<p>Transformational leadership theory Person-supervisor fit theory</p>	<p>Both the GTL and individual green values create positive effects on green psychological climate, and green product development performance is positively affected from this situation. In addition to this, it has been proven that when GTL style is matched with employee's green values, It is possible to create a green psychological climate, and hence increase green product development performance.</p>
<p>Kim & Stepchenova (2018)</p>	<p>Transformational leadership theory</p>	<p>GTL has a positive effect on both internal and external environmental orientation. Internal and external environmental orientation increase both the market and eco performance of the firm . Also, internal and external environmental orientation act as a full mediator to the positive relationship between GTL and firm performance.</p>
<p>Bahzar (2019)</p>	<p>Resource-based theory</p>	<p>GTL has a positive and significant relationship with eco-innovation and green creativity. GTL, eco-innovation and green creativity have a significant impact on increasing energy efficiency.</p>
<p>Saleem, Mahmoo & Ahmed (2019)</p>	<p>Transformational leadership theory Self-determination theory</p>	<p>GTL has a positive effect on both employees' pro-environmental behaviour and intrinsic motivation. Also, intrinsic motivation acts as a partial mediator to the positive relationship between GTL and employees' pro-environmental behaviour.</p>
<p>Kim et al. (2019)</p>	<p>Self-determination theory Transformational leadership theory Social exchange theory</p>	<p>Employees' environmental beliefs partially mediate the effect of both GTL and environmental policies on organizational citizenship behaviour towards the environment. On the other hand, employees' environmental belief fully mediates the positive relationship between environmental education and organizational citizenship behaviour towards the environment. Employees' perception of organizational support has a moderator effect on the relationship between employees' environmental beliefs and organizational citizenship behaviour towards the environment.</p>
<p>Graves, Sarkis & Gold (2019)</p>	<p>Transformational leadership theory</p>	<p>Immediate manager's active GTL, contingent reward, and active management by exception have a positive and significant relationship with employees' pro-environmental behaviour. Top management commitment has a moderator effect on the relationship between immediate managers' leadership and employees' pro-environmental behaviour. Both employees' external motivation and managers' passive environmental leadership are negatively related to employees' pro-environmental behaviour. Internal motivation is positively associated with employees' pro-environmental behaviour.</p>

Singh et al. (2020)	Resource-based theory Ability-motivation-opportunity theory	GTL positively influences employee's green ability, green motivation and green opportunity. Green human resource practices play a mediating role between GTL and green innovation.
Liu & Jie (2020)	Natural resource-based theory Social learning theory Transformational leadership theory	GTL positively affects environmental performance. Proactive environmental strategy and collective organizational citizenship behaviours toward the environment act as mediators to the positive relationship between GTL and green performance. Environmental concern enhances the positive relationship between GTL and proactive environmental strategy/collective organizational citizenship behaviours toward the environment.
Wenjing et al.(2020)	Self-determination theory Componential theory of creativity	GTL positively affects green creativity. Green internal motivation mediates the positive relationship between GTL and green creativity. Moderator green external motivation negatively affects the relationship between green internal motivation and green creativity.

Conceptual foundations of GTL

This section presents a systematic conceptual framework on GTL. In the study, researches related with GTL style have been gathered under three titles as “GTL and green behaviour at work”, “GTL and green creativity” and “GTL and green performance”.

GTL and green behaviour at work

The corporations' being successful in the context of environmental sustainability significantly depends on the behaviours of the employees in the workplace (Paillé, Boiral & Chen, 2013). Behaviours of the employees are strongly affected by leadership style (Bass, 1985). Empirical studies show that transformational leadership style has effects on employees' behaviours (Avolio & Bass, 1988; Bass & Avolio, 1994; Sosik, Kahai & Avolio, 1998). There are findings in literature that leadership style provided by close managers is important in encouraging the employees for green behaviour at work (Ones & Dilchert, 2012; Norton *et al.*, 2015) as an environment responsible activity (Ramus & Steger, 2000; Anderson, Shivarajan & Blau, 2005; Robertson & Barling, 2013). Value based and inspiring quality of transformational leadership understanding makes it suitable to encourage green behaviour at work (Shamir & House, 1993; Egri & Herman, 2000).

Transformational leadership is formed with four dimensions as inspirational motivation, idealized influence, individual consideration and intellectual stimulation (Bass, 1990; Bass & Riggio, 2006). Transformational leader could be described as a leader who gives inspiration to its followers towards going above their own interests, by means of changing their ideals, interests, souls and values to reach high

performance levels (Bass, 1985). Chen & Chang, referring to Bass (1998), Gardner & Avolio (1998) in 2013, have extended the transformational leadership concept with an environmental /green viewpoint. They have introduced the GTL concept as a style that motivates its followers to reach environmental goals and inspire them to show higher performances than expected . Similarly, Robertson & Barling (2013) have conceptualized environmentally-specific transformational leadership by expanding the focus of target specific transformational leadership to include environmental sustainability. They have defined environmentally-specific transformational leadership as “*a manifestation of transformational leadership in which the content of the leadership behaviours is all focused on encouraging pro-environmental initiatives*”. In line with these definitions, environment-specific transformational leadership can be regarded as a synonym of GTL.

Intellectual stimulation of directors who have high GTL could encourage employees to question assumptions about environmental problems and to consider new and different ideas to solve these. GTL’s with individual consideration could increase employees’ competent feeling levels about environmental issues, by providing coaching and consulting. They can also develop employees’ capacity to solve environment problems, by means of evaluating development needs of every employee and providing proper personal training opportunities (Graves, Sarkis & Zhu, 2013). Moreover, based on their idealized influence, if they act proper to green behaviour at work, employees could also act the same, and hence green behaviours at work could be adopted (Hadi & Rasoll, 2017). Besides this, they could clearly state the importance of environmental sustainability, build a vision based on a sustainable future and utter environmental values by passionately and modestly speaking, with inspirational motivation. Therefore, they could be an inspiration source for bringing green behaviour out at work (Egri & Herman, 2000; Daily, Bishop & Govindarajulu, 2009; Graves, Sarkis & Zhu, 2013; Robertson & Barling, 2013).

Studies confirm that there is a positive sided meaningful relationship between GTL behaviour and employee’s green behaviour at work (Graves, Sarkis & Zhu, 2013; Robertson & Barling, 2013; Kura, 2016; Robertson & Carleton, 2016; Robertson & Barling, 2017; Graves & Sarkis, 2018; Wang, Zhou & Liu, 2018; Saleem, Mahmood & Ahmed, 2019; Graves, Sarkis & Gold, 2019; Kim *et al.*, 2019; Liu & Jie, 2020). However, there is also a call that a mechanism improving and interfering with the relationship between employee’s behaviour at work and GTL behaviour should be found (Avolio *et al.*, 2004; Bass, 1999; Chen & Chang, 2013; Kura, 2016; Hadi & Rasoll, 2017).

Graves, Sarkis & Zhu (2013), made a research to form a deeper understanding about the determiners in the relationship between GTL and green behaviour at work, by using self-determination theory (Ryan & Deci, 2000), focusing on autonomous motivation

and the external motivation component of controlled motivation. According to self-determination theory, the motivation type that the individuals possess is an important behaviour determiner. This theory evaluates motivation types in two categories as autonomous and controlled motivation. Autonomous motivation argues that individuals have a consistent ego and maintain activities in accordance with the ego (Deci & Ryan, 2000; Gagné & Deci, 2005). According to this motivation type, individuals could in real terms be motivated to perform an activity if it matches with their own values and goals and they find it interesting and pleasant (Gagné & Deci, 2005). In this context, the individuals that give importance to environmental sustainability could head towards green behaviour at work as they are internally motivated.

According to controlled motivation, though, individuals continue their activities as they should, or they believe they should (Deci & Ryan, 2000; Gagné & Deci, 2005). For example, the individuals that are externally motivated, could be trying to do what the system requires, be rewarded and confirmed or avoid sanctions (Graves, Sarkis & Zhu 2013). This kind of external motivation could be common among the employees and could encourage green behaviour at work (Andersson, Shivarajan & Blau, 2005; Ramus, 2002).

In conclusion of the study, as suggested by self-determination theory, while autonomous motivation is in positive connection with green behaviour at work, it is seen that the relationship between external motivation and green behaviour at work is moderated by GTL. It is also observed when the GTL is high, the relationship between external motivation and green behaviour at work is positive and when it is low, the relationship is negative. Studies confirm that there is a positive meaningful relationship between employees' perceptions of managers' GTL and employees' internal and external motivation. Consequently, it is seen that the interaction of GTL, autonomous and external motivation is important for impressing the green behaviour of employees at work (Graves, Sarkis & Zhu, 2013; Graves & Sarkis, 2018).

GTL's could enable their followers to internalize organizational values (Bono & Judge 2003; Dvir *et al.* 2002). Such that, they could clearly point out environmental goals with ideological explanations that emphasize environmental values. Hence, they could make the environmental activities more meaningful for their followers (Jung & Avolio, 2000; Bono & Judge, 2003). Besides, they could help their followers to harmoniously experience green behaviours at work and hence enable autonomous motivation to be realized (Graves, Sarkis & Zhu, 2013).

Transformational leaders, according to a widespread view, use internal rewards and motivation (Bono & Judge, 2003). But it has also been proven that they use external rewards and motivation together with the behaviours like determining the expectations and managing rewards based on performance (Judge & Piccolo, 2004). In this context,

GTL's could use external rewards as a motivation instrument in order to direct employees to green behaviour at work. For example, they could provide external motivation by increasing their followers' competence through focusing on improving their capabilities (Graves, Sarkis & Zhu, 2013; Graves & Sarkis, 2018).

Kura (2016) made a study thinking that the concept of environmental concern could be a key mechanism in explaining the connection between GTL and green behaviour at work. Basing his study on the theory of planned behaviour, he tried to explain that an employee who is worried about the natural environment has a high possibility to head towards green behaviour. The conclusion of the study shows, environmental concern plays a mediating role between green transformational leadership and green behaviour at work. Consequently, it is seen that employees inspired and intellectually encouraged by their GTL's, have higher possibilities to show apprehension about nature and this situation positively affects green behaviour at work.

Robertson & Carleton (2017) conducted research to explain how and under what conditions GTL style affects employees' voluntary green behaviour. The results of the research show that GTL style directly affects employees' voluntary green behaviours, and that employees' perceptions of their co-worker's pro-environmental climate partially mediate this relationship. The results also show that internal environmental focus of control moderates the indirect effects of GTL style on employees' voluntary green behaviour.

Hadi & Rasoll (2017) have developed a conceptual frame that displays the importance of GTL in supporting employee pro-environmental behaviours, basing on self-determination theory and transformational leadership theory, as a result of an extensive literature review. They have pointed out that there would be a positive sided meaningful relationship between GTL style and employee pro-environmental behaviours and in this relationship, autonomous motivation would take the mediator role.

Wang, Zhou & Liu (2018) have studied the effect of GTL on green behaviour at work in the light of value congruence perspective and moderating the role of employees' green identity, by using the theory of transformational leadership and identity. Conclusion of the study shows that value congruence plays a mediator role in the relationship between GTL and green behaviour at work and this mediation could be managed according to green identity. Therefore, employees with a high green identity could interpret vision and values provided by GTL's more greenly and could experience a deep harmony between leaders' values and their own.

Maziriri & Saurombe (2018) as a result of the study they made basing on human capital theory, natural resource-based theory and green theory, have concluded that GTL style has a positive and significant impact on employee's harmonious habitation

of the environment. Besides, it has also been revealed that employee's harmonious habitation of the environment has a positive and significant impact on employee's green behaviour at work. However, in this study as different from the others, it is surprisingly seen that the same positive and significant relationship could not be retained between GTL and employee's green behaviours. As a result, it is seen that in order to increase the employees' green behaviour at work, corporates should enhance their GTL.

GTL and green creativity

Creativity in business literature is generally described as creating new and useful products, ideas and procedures for innovation (Shalley, Gilson & Blum, 2000). Creativity is critically important for corporates to organizationally develop and to show high performance (Amabile, 1988). Creativity is brought out as a determiner of new product development performance (Chang, Tein & Lee, 2010). Conclusions of the studies show there is a positively meaningful relationship between creativity of the product development team and product development performance (Smith & Reinertsen, 1992; Amabile *et al.*, 1996).

Green creativity is to develop new ideas about green products, processes and services or applications considered as new and useful (Chen & Chang, 2013). In the research by Cheng & Chang (2013), it is seen that corporates with high green creativity have high green product development performance. Directors of corporates are highly worried about the way to encourage green creativity (Chen & Chang, 2013; Zhu, Cordeiro & Sarkis, 2013). Studies on creativity show that one of the most important factors to develop employees' creativity is the "leadership behaviour" (Amabile *et al.*, 2004; Mumford & Hunter, 2005). The leadership behaviour that inspires its employees with a certain vision, helps to clarify some concrete goals and enables the employees to communicate well within their team (Moslehpour *et al.*, 2019), is seen as one of the main factors to be successful in all kinds of group activities (Dansereau, Graen & Haga, 1975).

Academicians who do research about creativity by social learning theory principles, state that thanks to charismatic behaviour and intellectual stimulation of the leader, the followers could proactively think and develop new ideas (Gong, Huang & Farh, 2009; Mittal & Dhar, 2015). Social learning theory could be described as indirect learning based on the other's behaviours and observing these behaviours. According to this learning called observational learning, people, without need for trial and error, could learn general and integrated learning molds (Bandura 2001). This kind of learning process could help employees to form creative self-efficacy, then to determine difficult goals and to be motivated to fearlessly continue when they face a negative situation (Bandura, 1986). As seen, this theory is closely connected with specific components of transformational leadership.

Transformational leadership through intellectual stimulation could be an inspiration source for employees to build problems, search for information, find solutions and develop cognitive processes about creativity (Reiter-Palmon & Illies, 2004; Gong, Huang & Farh, 2009). With inspirational motivation, the transformational leader who puts a clear vision for its followers and shows way to realize this vision (Gong, Huang & Farh, 2009; Mittal & Dhar 2015), gingers up by team soul vaccinating (Gao & Bai, 2011) and becomes an inspiration for followers to express their ideas, encourages the creative thought.

Moreover, with individual consideration, it could support creativity by providing coaching and consultancy to its followers (Gong, Huang & Farh, 2009). In conclusion, with its idealized influence, namely charismatic power, it could help the followers to produce inspiring ideas (Gao & Bai, 2011). Results of the studies also show the importance and positive effects of transformational leadership behaviour on employees' creativity (Avolio, Bass & Jung, 1999; Woodman, Sawyer & Griffin, 1993; Jung, 2001; Elkins & Keller, 2003; Shin & Zhou, 2003; Gong, Huang & Farh, 2009; Gumusoglu & İlsev, 2009; Wang & Rode, 2010; Cheung & Wong, 2011; Zhang *et al.*, 2011; Mittal & Dhar, 2015).

Similarly, Chen & Chang (2013), Mittal & Dhar (2016), Jia *et al.*, (2018), Bahzar (2019) and Wenjing *et al.*, (2020), reveal with their studies that GTL style has a positive impact on green creativity. In a study, it is seen that green organizational identity is a partial mediator for the relationship between GTL and green creativity and when the corporations' sourcing commitment is high, the positive impact of green organizational identity on green creativity increases (Mittal & Dhar, 2016).

Another study confirms that GTL style develops green creativity by encouraging green human resources management (Jia *et al.*, 2018). Besides, it is seen that there is a positive sided meaningful relationship between GTL and employees' green passions (Robertson & Barling, 2013; Jia *et al.*, 2018). Moreover, green passion acts as a mediator for the relationship between GTL and green creativity (Jia *et al.*, 2018). Consequently, for leaders to provide green creativity, it could be said that they need to make necessary sources ready and develop employees' green organizational identity perceptions and knowledge, awareness and capabilities about nature.

GTL and green performance

With the effect of environmental pollution and global warming increasing these days, environmental preservation has become an important subject. Consumers who have understood the negative effects of industrial production on the environment, have begun to pay more attention to green products (Chen, 2010; Chen & Chang, 2012). Therefore, corporations are in a position to both meet the environmental needs

of the market and to adopt green innovation for various strategies (Chen, 2008; Sheu, 2014). Corporations who have reached this awareness level, head towards designing and developing green products (Chen, 2011).

Leaders, thanks to their leadership, empathy and persuading abilities for employees to reach the goals, could play a key role in the achievement of the product development team (Edmondson & Nembhard, 2009). Studies show that transformational leadership has positive effects on organizational innovation performance (Jung, Chow & Wu, 2003; Ross & Gray, 2006; Sarros, Cooper & Santora, 2008; Gumusoglu & İlsev, 2009; Chen, Chang *et al.*, 2014). Transformational leaders could create benefits for new ideas in the innovation process to pervade. Moreover, they could play a supporting role by motivating the followers to think about all problems in new techniques (Waldman & Bass, 1991; Keller, 1992). As a result, transformational leaders could increase new product development performance by building a new vision, putting high performance expectations out, showing clear goals to its followers and personal support (Sarros, Cooper & Santora, 2008).

Studies show that GTL style has a positive and important effect on green performance (Chen & Chang, 2013; Chen, Chang & Lin, 2014; Zafar *et al.*, 2017; Bahzar, 2019; Liu & Jie, 2020). Green performance could be described as software and hardware performance included in the innovation process that consists of modernizing in technologies related with energy saving, waste reduction, recycling and corporate environment management, for a corporate to produce green products and processes (Chen, Lai & Wen, 2006). According to the results of a study made by Zhou *et al.*, (2018) both the GTL and individual green values create positive effects on green psychological climate, and green product development performance is positively affected from this situation. In addition to this, it has been proven that when GTL style is matched with employee's green values, it is possible to create a green psychological climate, and hence increase green product development performance. So, according to person-supervisor fit theory, as a result of the match of employees' individual green values and GTL's values, it could be said that the green psychological climate level increases. Besides, it could be also said that when the green development idea of GTL matches with employee's environmental beliefs, employees' motivation and green product performance increase (Zhou *et al.*, 2018). Another research confirms that GTL develops green innovation by encouraging green human resources practices. Besides, green human resources practices act as mediators for the relationship between GTL and green innovation (Singh *et al.*, 2020).

Bahzar (2019) as a result of the study he made basing on resource-based theory has concluded that GTL has a positive and significant impact on eco-innovation. Furthermore, the results have confirmed that GTL, eco-innovation and green creativity

have a significant impact on energy efficiency.

Research shows that GTL positively affects green mindfulness, green self-efficacy and green performance. Moreover, green mindfulness and green self-efficacy act as partial mediator to positive relationship between GTL and green performance. When the green transformational leader decides on applicable goals, clarifies standards, develops a collaborative culture, makes positive feedback and takes a coaching role, it could be said that the employees could increase their green self-efficacy (Chen, Chang & Lin, 2014; Zafar *et al.*, 2017). Besides this, as the GTL could encourage the employees to develop new green ideas, carry out their knowledge and learn new green technologies, they could both raise green awareness and activate green organization processes (Vogus & Sutcliffe, 2012). As a result, it is seen that in order to increase the green performance, corporates should enhance their GTL, green awareness and green self-efficacy (Chen, Chang & Lin, 2014; Zafar *et al.*, 2017).

Results of the literature analysis

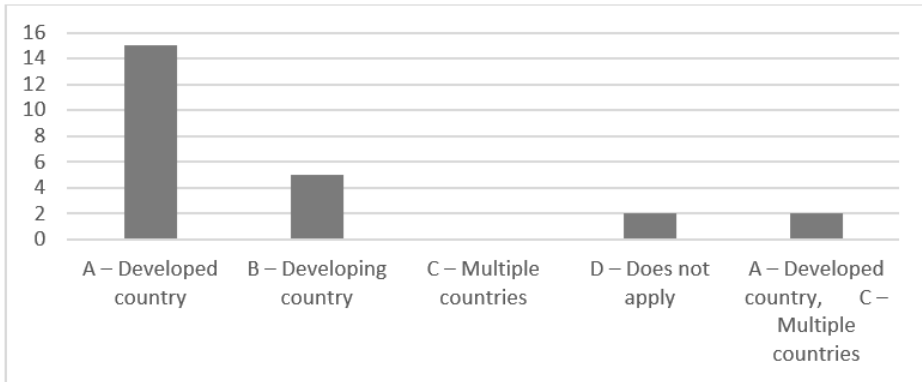
In this section, as a second piece of the results, a descriptive analysis is made and presented to discuss the advanced literature review. Process of the classification and categorization of the selected 24 articles displayed on Table 4, has been performed in the direction of classification and coding in Table 2. The subjects analysed in this study are national context, method, sector, research focus, key mechanisms to explain the focus of the research and the position of GTL in the analytical model.

Table 4
Categorization and classification of selected articles

Year	Authorship	Country	1 - Context	2 - Method	3 - Sector	4 - Focus	5 - Key Mechanisms	6- Position
2013	Chen, & Chang	Taiwan	B	A, E	A	B, C	N	B
2013	Graves, Sarkis & Zhu	China	B	A, E	A, B	A	D, E	B, C
2013	Robertson & Barling	U.S., Canada	A, C	A, E	C	A	F	A, B
2014	Chen, Chang & Lin	Taiwan	B	A, E	A	C	C	B
2016	Kura	Nigeria	B	A, E	B	A	I	B
2016	Mittal & Dhar	India	B	A, E	B	B	L	B
2017	Robertson & Carleton	U.S.	A	A, E	A	A	A	B
2017	Hadi & Rasool	-	D	B, C	C	A	D	B
2017	Zafar et al.	Pakistan	B	A, E	A	C	C	B

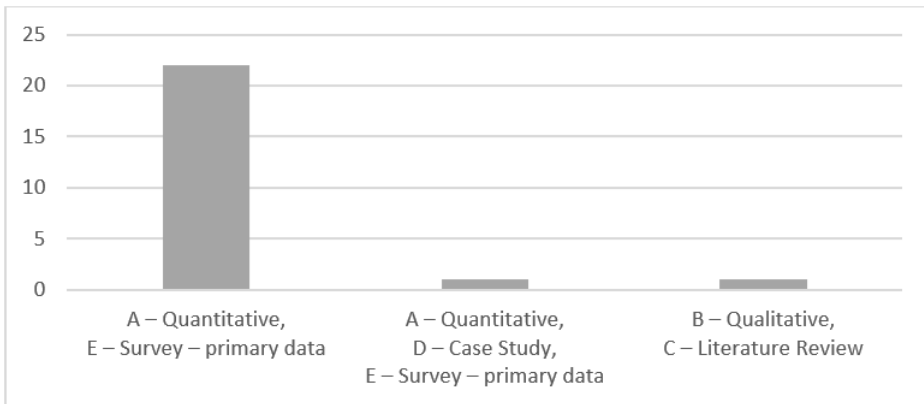
2017	Robertson & Barling	U.S., Canada	A, C	A, D, E	B, C	A	N	B
2018	Jia et al.	China	B	A, E	A	B	B, F	B
2018	Robertson	U.S.	A	A, E	B, C	A	N	B
2018	Maziriri & Sauroombe	South Africa	B	A, E	C	A	M	B
2018	Wang, Zhou & Liu	China	B	A, E	A	A	H	B
2018	Zhou et al.	—	D	A, E	A	C	A	B
2018	Graves & Sarkis	U.S.	A	A, E	A	A	D, E	B
2018	Kim & Stepchenova	South Korea	A	A, E	B	C	J	B
2019	Bahzar	Indonesia	B	A, E	B	B, C	N	B
2019	Saleem, Mahmoo & Ahmed	Pakistan	B	A, E	B	A	D	B
2019	Kim et al.	Thailand	B	A, E	B	A	K	B
2019	Graves, Sarkis & Gold	Russia	B	A, E	A, B	A	N	B
2020	Singh et al.	United Arab Emirates	A	A, E	A	C	B	B
2020	Liu & Jie	China	B	A, E	A	A, C	G	B
2020	Wenjing et al.	China	B	A, E	A	B	D, E	B

According to the 1st group classification on national context, it is seen that 15 researches have been performed in developing countries (B category), 5 researches have been performed in developed countries (A category) and 2 researches have been performed in developed countries beyond national context (A and C category). Besides, it could be stated that 1 article represents a theoretical research and 1 article takes part in D category as its national context is not clear. According to these findings (Graphic 1), It could be said that research on GTL has been performed in developing countries. The reason for the intensity of research in developing countries could be described as the situation that depletion of natural resources, destruction of the environment and increasing global carbon footprint for the sake of rapid urbanization and economic development, create great anxiety in governments of developing countries (Kumar, 2013; Ogra, 2008).



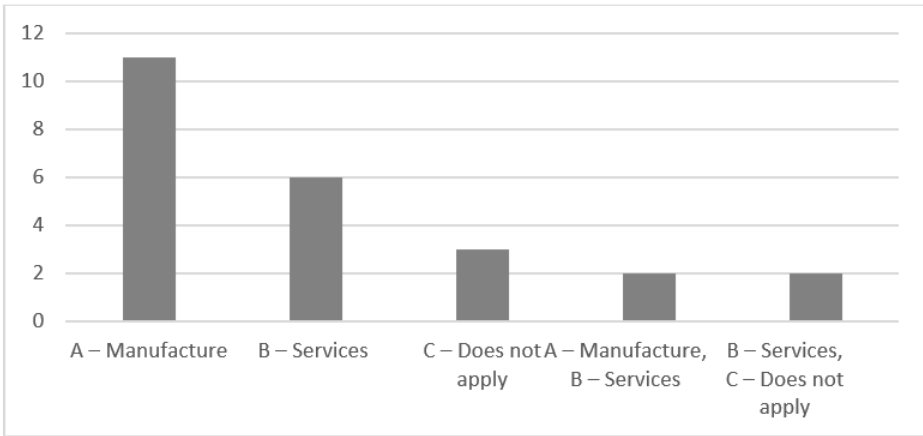
Graphic 1. Frequency of the results for national context

When the classification in the 2nd group about the method of research is examined, it is seen that 22 articles take part in A and E categories, 1 article in A, D and E categories and 1 article in B and C categories. According to these findings (Graphic 2), It could be said that in research , quantitative methods are generally preferred, and primary data is used.



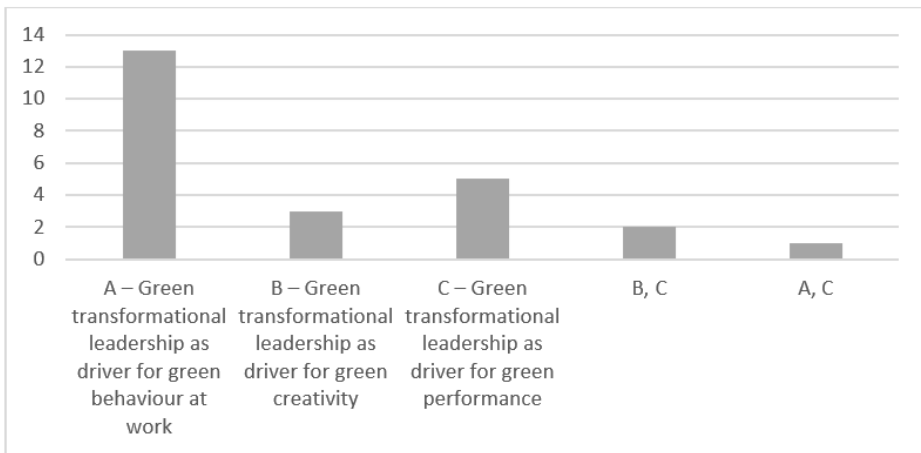
Graphic 2. Frequency of the results for method of research

According to the 3rd group classification about the economic sector the research has been performed on, it is seen that 11 articles take part in A category, 6 articles in B category, 3 articles in C category, 2 articles in A and B categories and 2 articles in B and C categories. According to these findings (Graphic 3), It could be said that the current studies have been carried out both in the manufacturing industry and in the service sector.



Graphic 3. Frequency of the results for sector

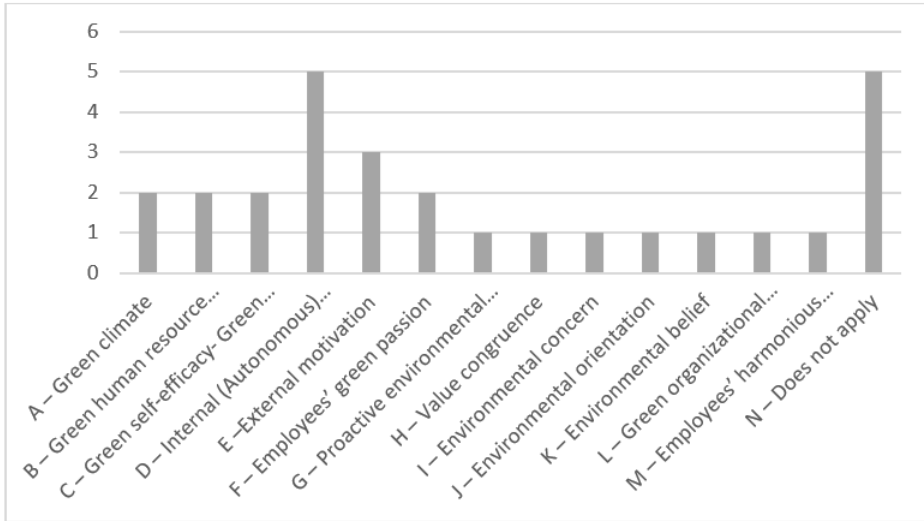
When the 4th group classification which reports the focus of the research is examined, it is seen that 13 articles take part in A category (GTL as driver for green behaviour at work), 3 articles in B category (GTL as driver for green creativity), 5 articles in C category (GTL as driver for green performance), 2 articles in B and C categories and 1 article in A and C categories. According to these findings (Graphic 4), it could be said that the GTL style is mostly discussed as the driving forces of the employees' green behaviour at work.



Graphic 4. Frequency of the results for research focus

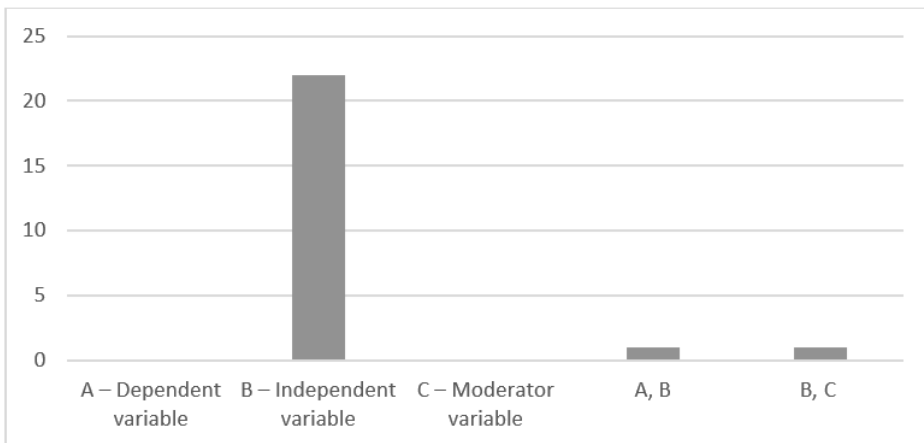
When 5th group classification which reports the key mechanisms that explain the impact of GTL style on green behaviour, green creativity and green performance, is examined, It is seen that 5 articles take part in D and N categories, 3 articles in E category, 2 articles in A, B, C and F categories and 1 article in G, H, I, J, K, L and M categories. According to these findings (Graphic 5), It could be said that the GTL style

is effective in increasing the internal motivation of the employees and this situation positively affects the green behaviour at work.



Graphic 5. Frequency of the results for key mechanisms to explain the focus of the research

According to the 6th group classification showing the position of GTL in the analytical model, it is seen that 22 articles take part in B category, 1 article in A and B categories and 1 article in B and C categories. According to these findings (Graphic 6), It could be said that GTL has usually been discussed as an independent variable.



Graphic 6. Frequency of the results for position in the analytical model

Future research agenda

GTL style is a concept that has just begun being relatively discussed in literature, and it is seen that it has a positive and significant effect on green behaviour at work,

green creativity and green performance. When the researches in literature are examined, it is seen that according to results in the 1st group that shows development level and number of countries in which the research has been performed, the researches on GTL have been performed in developing countries. These results indicate that there is a gap in the literature about the studies covering the reality of developed countries and multiple countries. Therefore, the first research proposal: In order to understand the different approaches of GTL, studies are conducted covering developed countries and to investigate comparisons between companies in multiple countries.

According to the results of the 2nd group that cover methods of research, it is seen that quantitative methods are generally preferred, and primary data is used. Quantitative studies that use secondary data and qualitative studies that are based on case studies have not been encountered in literature. There is a gap in this area to develop studies that deepen analysis of studies on GTL with qualitative methods and case studies. Besides, it could also be said that there is a gap to make research with quantitative studies by using secondary data. Therefore, the second research proposal: In order to deepen the analysis of GTL, it is to conduct qualitative studies based on case studies, and quantitative studies using secondary data.

According to the 3rd group classification about which economic sector the research is performed on, it is seen that the current studies were carried out both in the manufacturing sector and in the service sector. However, these results show that there is a gap in the literature regarding studies comparing manufacturing and service sectors. Therefore, the third research proposal is to develop studies comparing manufacturing and service sectors.

According to results of the 4th group classification that report the focus of the research, it is seen that most of the researchers analyse GTL style as a driving force for green behaviour at work. By that , it could be expressed that researchers in less numbers deal with GTL as a driver for green performance. Research in least numbers, though, analyse GTL as a driver for green creativity. Therefore, the fourth research proposal is to develop research to better understand the effects of GTL style on green creativity and green performance.

According to the 5th group classification results, which reported the key mechanisms that explain the impact of GTL style on green behaviour, green creativity and green performance, GTL style affects employees' green behaviour and green performance of corporations through multiple mechanisms. However, in order to better understand the mechanisms by which GTL affects employees' green behaviour at work and the green performance of corporations, it can be said that longitudinal research involving other potential mediators and using multiple data sources is needed. Therefore, the fifth research proposal is to conduct longitudinal studies using multiple data sources

and other potential mediators to better understand the mechanisms by which GTL affects employees' green behaviour at work and the green performance of corporations.

According to results of the 6th group classification showing the position of GTL in the analytical model, it could be seen that GTL has usually been discussed as an independent variable. Future research could examine the potential antecedents of GTL. In addition to this, future research could analyse GTL's moderating role. For example, green absorptive capacity described in literature about environmental sustainability as "obtaining environmental information, internalization, conversion and usage capabilities", is seen to have a positive and significant effect on green dynamic capacities (Chen 2015). In this relationship, both the moderating role of GTL and moderating role of this leadership in the relationship between green absorptive capacity and green performance could be investigated. Therefore, the sixth research proposal is to examine the potential antecedents of GTL and to analyse the moderate role of GTL.

Conclusions

Warming of the globe that we are living on, stares us in the face as one of the most serious risks that threaten human beings' together with plants and other living species' future. It is seen that corporations, to be able to solve the problems of sustainability like climate change, global warming and extinction threat of natural resources, apply environment management systems with policies (Darnall *et al.*, 2008; Gotschol *et al.*, 2014). In the achievement of environment management systems being mainly connected with employee's behaviours, it is seen that there is a consensus in literature in direction that leadership style is important in directing the employees (Ramus & Steger, 2000; Andersson, Shivarajan & Blau, 2005; Robertson & Barling, 2013). GTL style has been suggested by Chen & Chen (2013) and Robertson & Barling (2013) as being a product of transformational leadership that specifically adopts green values. This leadership could be described as a leadership style that adopts behaviours motivating followers to reach environmental goals and encouraging them to show performances more than the expected. On the grounds of resource-based theory, "GTL style" could be pointed out as one of the important internal resources and capabilities of corporations to be able to reach their environmental sustainability goals. Thereby, it is quite clear that putting forward the contributions about this internal resource and capability that creates advantages to corporates in sustainable competition, is important. From this point of view, in this study, by performing integrative systematic literature review, it has been aimed to examine research on GTL, to discuss present studies with an interpretive approach, to gather them under titles and classify, and to propose a future research agenda. For the purpose of this goal, it has been aimed to contribute to practice and literature. For this reason, this study has developed an integrative systematic literature review on GTL, where 24 articles have been selected through an advanced search in

academic bases, classified and codified based on a proposed system. The subjects analysed in the study are national context, method, economic sector, research focus, key mechanisms to explain the focus of the research and the position of GTL in the analytical model. Results of the analysis show that research on GTL has been performed in developing countries and quantitative methods based on primary data are preferred in research and current research has been carried out both in the manufacturing and service sectors. In the conclusion of the study, researches related to GTL style have been gathered under three titles as “GTL and green behaviour at work”, “GTL and green creativity” and “GTL and green performance”. As a result, it is understood that for the achievement of corporations in the context of environmental sustainability, employees should perform green behaviours (environmentally responsible behaviours), and the closest manager’s leadership style is important in fulfilling this (Ramus & Steger, 2000; Andersson, Shivarajan & Blau, 2005; Robertson & Barling, 2013). It has been proven with studies that GTL style is effective in encouraging the employees to green behaviour at work (Graves, Sarkis & Zhu, 2013; Robertson & Barling, 2013; Kura, 2016; Robertson & Carleton, 2016; Robertson & Barling, 2017; Graves & Sarkis, 2018; Wang, Zhou & Liu, 2018; Saleem, Mahmoo & Ahmed, 2019; Graves, Sarkis & Gold, 2019). Researchers have shown that the GTL style is also effective in increasing the intrinsic motivation of the employees and this situation increases the green behaviour at work. Besides, it is understood that green creativity concept is important for corporations to increase their green innovation performance, and GTL has positive and significant effect on green creativity (Chen & Chang, 2013; Mittal & Dhar, 2016; Jia *et al.*, 2018; Bahzar, 2019; Wenjing *et al.*, 2020). Moreover, it has been supported by empirical studies that GTL style is important for corporations to improve green performances (Chen & Chang, 2013; Chen, Chang & Lin, 2014; Zafar *et al.*, 2017; Bahzar, 2019; Liu & Jie, 2020). At the same time, researchers have shown that GTL style is effective for increasing green awareness and green self-efficacy of the employees and hence increases green performance (Chen, Chang & Lin, 2014; Zafar *et al.*, 2017).

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