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A Comparison of Innovative Education Perceptions of Teachers Working in Turkey and South Africa

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ABSTRACT

This study explored and compared metaphorical perceptions of "Innovative Education" among 100 in-service teachers from Turkey and South Africa during the 2020-2021 academic year. A phenomenological research design was adopted for this qualitative investigation. Teachers accessed an online platform to complete the open-ended prompt: "Innovative Education is like a ……because……". The data was categorized through content analysis into four themes: vision, value, novelty, and process. Rogers' Diffusion of Innovation theory provided a framework for interpreting the findings. The results revealed that teachers in both countries perceived innovation as a relative advantage, likely due to the significant changes experienced during the pandemic. However, South African teachers' metaphors also indicated complexity, potentially reflecting a lack of adequate training and support during the implementation of innovative practices. Conversely, Turkish teachers' metaphors suggested a more welcoming attitude, possibly due to sufficient support structures. Based on these findings, the study recommends that promoting teacher confidence during educational innovation should involve strong advocacy alongside comprehensive training and support programs.

Key words: Innovative Education, Metaphorical Perceptions, In-Service Teachers

INTRODUCTION

The dynamic character of the globalized world makes innovation in education important (Kremer, Villamor & Aguinis, 2019) because it ultimately serves to benefit the socio-economic arena (European Commission, 1995) of each country. Teachers are instrumental in the implementation of educational transformation (Yılmaz, 2021) and as such, their perceptions of innovation in education can reflect societal values, norms, and traditions that prepare its citizens for the evolving demands of the workplace (Serdyukov, 2017; Gupta, 2018). Studies on this topic show that teachers have a positive attitude towards educational innovation because of the cutting-edge methods they have used to improve the educational system and change the teaching profession (Karolčík & Marková, 2023; Chounta et al., 2022; Yılmaz, 2021). More recent studies associate innovation with education's effort to become relevant to social changes that relate to the use of technology. Despite their different contexts, it is important that education systems learn from each other's experiences and complement their teachers' outlook to changes introduced.

Since independence, the South African education system has struggled to redress legacies from the apartheid era that have left an indelible mark in the running of schools in the country and made it difficult to implement innovations aimed at standardizing the quality of education (Meier & West, 2020; Du Plessis & Letshwene, 2020). Challenges such as unequal distribution of resources and inadequate teacher professional development (Jansen & Christie, 1999; Lelliott et al., 2009; Rogan, 2007; Sayed & Kanjee, 2013; Maepa, 2017; Mbatha, 2016; Du Plessis & Letshwene, 2020) create unevenness in the advancement of teacher capacity. In addition, South Africa, where educational innovations have been met with limited success Du Plessis and Letshwene (2020), highlight the potential pitfalls associated with inadequate preparation and support for teachers during curriculum changes (Govender, 2018). Regardless of these challenges, South African teachers have positive perceptions towards educational innovation as it brings about improved pedagogical practices (Ramnarain, 2014).

While the Turkish education system has been in existence for over 80 years it is still struggling with the same challenges as its counterpart and these include insufficient teacher professional development, crowded classrooms and frequent innovation (Kara, 2020). What also levels the ground for both countries is that they are both on the G20 list and that they are considered as having an emerging economy. Secondly, the two ascribe to global imperatives

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that put pressure on education systems to provide quality education (Sachs et al., 2024). Nevertheless, Yılmaz (2021) reported that Turkish teachers perceive innovation as a cornerstone of a robust educational system. This perception underscores the importance of not only fostering an education system's capacity to respond to change, but also ensuring that implementers, such as teachers, are equipped for successful execution of innovation (Yılmaz, 2021). Thus, Turkish teachers' perceptions of education innovation are associated with progression and as perceived as "Technology", "Adaptation", "Following up to date" and "Self-improvement" (Kocasaraç & Karataş, 2017). These reflect teachers' experiences of the innovations which cannot be isolated from how their education system administers them.

Understanding teachers' metaphorical perceptions of innovation can provide valuable insights into the current state of innovative education in South Africa and in Turkey. This study investigates how teachers in South Africa and Turkey perceive educational innovation based on their experiences with systemic changes.

LITERATURE REVIEW

Innovation in Education

Educational innovation is widely viewed as a means to enhance learning efficiency and student outcomes (Deppeler & Aikens, 2020). It is thus, synonymous with pedagogical innovation, as it seeks to address issues of quality, accessibility, efficiency, and effectiveness in education through adaptable actions that better serve the needs of the school community and society at large (Núñez et al., 2022). Teachers, as van Vijfeijken et al. (2024) posit, act as crucial "agents of change" in this process. Their role encompasses not only the content they deliver but also the pedagogical approaches they employ (Núñez et al., 2022). Teachers' perspectives are therefore crucial for the planning and implementation of educational reforms, given that these transformations ultimately take place within the classroom environment (Yılmaz, 2021). The successful implementation of educational innovation hinges on a multitude of factors, with teachers' attitudes and capacity for innovation emerging as central (van Vijfeijken et al., 2024). An understanding of what informs these views is helpful in rendering teachers' experiences that influence their propensity to implement innovation. Figure 1 depicts Rogers and Shoemaker's (1971) five attributes of innovations that form part of Roger's (1995, 2003) diffusion theory that may influence the perceptions of those implementing them. While not specifically designed for teacher-driven innovation, this theory is concerned about 'how, why and what rate innovative ideas and technologies spread in a social system' (Wani & Ali, 2015, p. 103). It thus helps provide an explanation for teachers' perceptions on educational innovations in their countries.

In the Relative Advantage attribute, Rogers (1995, 2003) predicts that when the perceptions of innovators (in this case, teachers) view innovation as having the potential to improve their practices, they will instantly adopt the educational change. The issue of teacher capacity or support is thus not a factor that would hinder the adoption. The Compatibility attribute relates to the innovator seeing the alignment of the change with his or her practice. Teachers will then be perceiving the innovation as relevant to their classroom practices. When the introduction of an innovation is perceived as complex in understanding and implementing, its adoption may be slower (Roger, 2003). Teachers would thus need

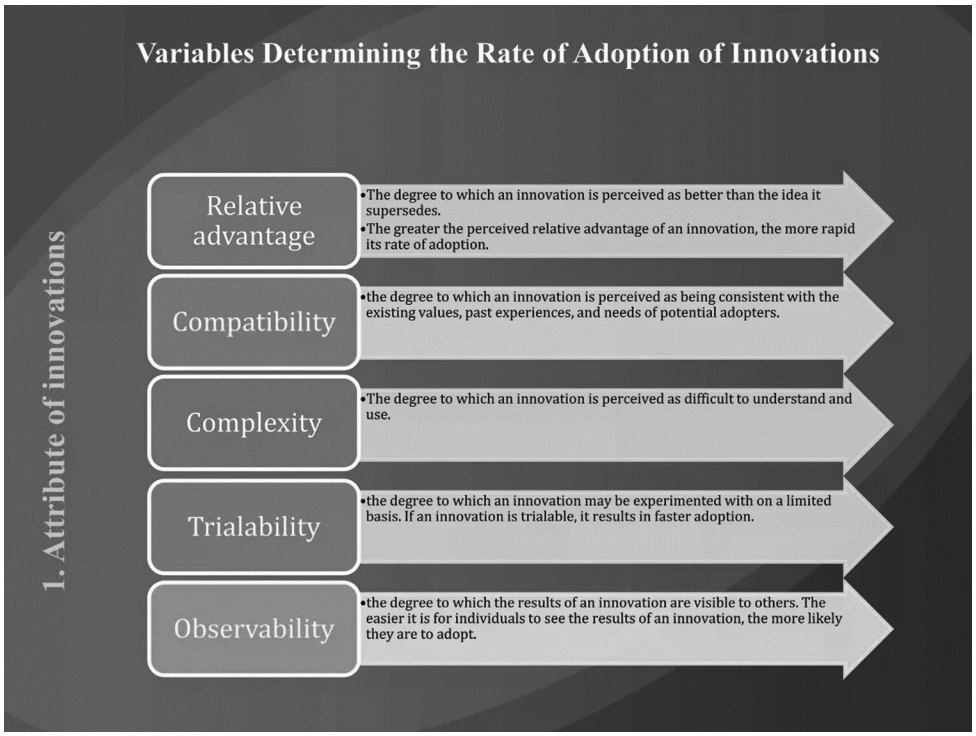

Figure 1. Innovation characteristics (Rogers and Shoemaker, 1971)

support if they will adopt it at the desired pace. Trialability is when trying the innovation before adopting it (Wani & Ali, 2015) and it feels doable. Observability has to do with how the innovation is communicated with the user. If it is presented in a simple and logical way, its adoption can be assured.

As illustrated in Figure 1, individuals' perceptions of innovation are demonstrably influenced by their interpretation of three key factors: the anticipated benefits, the degree of disruption to their existing context, and the innovation's perceived plausibility (Smith et al., 2023). The urgency to adopt an innovation consequently becomes a function of the intensity of these three influences.

Over and above inherent teacher's perceptions, Sharma (2001) advocates for school leadership that should foster a supportive institutional culture that encourages teacher experimentation, risk-taking, and continuous learning. Therefore, robust systemic support is essential to ensure that educational innovation flourishes and yields the intended benefits for society (Serdyukov, 2017; Núñez et al., 2022). An unsupportive working environment, conversely, is likely to negatively impact teachers' perceptions of educational innovation and thus view innovation as complex and incompatible with their practices. Teachers are constantly exposed to and required to adapt to new approaches (Fluck, 2003) and this ongoing cycle fosters a sense of innovation among teachers, who leverage these advancements to improve learning outcomes for all students (Trimmer et al., 2020). In addition, quality teacher capacity development for implementing educational innovations (Trimmer et al., 2020) can promote a quicker adoption of educational innovation.

This research investigates whether teachers are cognizant of the discussed factors and possess the ability to capture and articulate them verbally, thus comprehensively representing their personal construct of innovation. By soliciting metaphors used by teachers to describe educational innovation, this study seeks to illuminate how teachers reduce complex concepts to understandable forms (Lakoff & Johnson, 2008).

Metaphors

A metaphor, is a figure of speech that compares two distinct entities (Burmakova & Marugina, 2014) and serves as a cognitive tool to illuminate complex subjects, phenomena, or situations. It functions by establishing an analogy between a challenging concept and a familiar object, phenomenon, or event (Arslan & Bayrakçı, 2006). Lakoff and Johnson (1980) posit metaphor as a powerful mental mapping mechanism that fosters self-awareness by enabling individuals to utilize their understanding of one realm to comprehend another. As individuals encounter novel objects or events, they approach them through the lens of their existing knowledge, skills, and attitudes (Saban, 2005). When these encounters involve abstract concepts, individuals may subconsciously establish metaphorical bridges between the abstract and the concrete to facilitate the expression of their thoughts (Saban, 2005).

Metaphors serve as a valuable tool for uncovering the foundations of "human thinking about the world and reality" (Saban, 2006, p. 299) as shaped by lived experiences (Kuzey, 2020). Beyond their role as a mere "figurative device" (Saban, 2006, p. 299), metaphors fundamentally "structure our perception, thought, and action" (Saban, 2006, p. 299). As Saban (2006) contends, metaphors function as instruments of discovery, fostering comprehension of a phenomenon by highlighting similarities and analogies between two distinct ideas. The advantage of metaphors lies in their ability to illuminate concepts which may be unfamiliar by drawing connections to what is already known (Saban, 2006).

Two key domains constitute a metaphor: the target domain, representing the concept being elucidated through the metaphor, and the source domain, signifying the concept from which the metaphor is drawn (Burmakova & Marugina, 2014, p. 528). `In this study, it is anticipated that as teachers utilize metaphors to describe innovative education (target domain), their experiences (source domain) will be brought to light. Through metaphors, then, "windows that help them establish their professional thinking and understanding are provided" (Saban, 2006, p. 299). Extending this notion, Kuzey (2020, p. 141) proposes that metaphors "reflect the culture of a nation as an expression of beliefs and values, such as those in ontological terms that reflect human experiences." In essence, metaphors hold the potential to portray the ways in which educational innovation is experienced by teachers across the two countries investigated in this study. By examining the perceptions of innovation in education of the teachers participating in the research, we can gain an idea of how much the innovation movements occurring in the education systems benefit teachers and students. Determining teachers' perceptions of innovation in education can contribute to the accuracy and efficiency of the changes to be made in education systems.

This research sought to identify and compare the metaphorical perceptions of teachers in Turkey and South Africa regarding the concept of "Innovative Education." The following research questions guided the inquiry:

1. What are the metaphors that teachers put forth about the concept of "Innovative Education"?
2. What conceptual categories can the metaphors put forth by teachers be grouped under in terms of their common characteristics?
3. What are the differences and similarities in terms of metaphors put forward by teachers in Turkey and South Africa?

METHOD

This study employed a qualitative research methodology grounded in the screening model (Flick, 2013). A transcendental phenomenological approach to data analysis was utilized, aiming to describe and understand participants' experiences with "structures of the world, in particular the structure of consciousness, intentionality and essences in an external world" (Grbich, 2013, p. 97). Snowball sampling, a non-probability technique, was used to recruit participants. Researchers sent a link to a Google form to their contacts in Turkey and South Africa, soliciting perceptions from participating teachers (Patton, 2002). Ethical considerations were addressed in accordance with the researchers' institutional

guidelines, ensuring confidentiality and anonymity (Creswell & Creswell, 2017).

The final sample comprised 100 teachers: 50 from Turkey (17 females, 33 males) and 50 from South Africa (33 females, 17 males). Participants provided their perceptions of innovation by completing the statement "Innovative education is like..." and explaining their chosen metaphor. While the study adopted a diffusion of innovation lens (Rogers, 2003), the "messy data" (Lester, 1999) proved incompatible with template analysis techniques, which rely on pre-defined categories. Instead, key themes were identified based on recurring metaphors and compared across the two countries to explore how teachers' experiences with educational innovation might influence their perceptions. As highlighted by Yıldırım and Şimşek (2016), metaphors, as a qualitative data collection method, serve a primarily descriptive role, offering a rich and vivid portrayal of the subject, event, phenomenon, or situation under investigation.

Participants

The sample for this study comprised in-service teachers from Turkey and South Africa (n = 100). Data collection occurred during the 2020-2021 academic year. A detailed breakdown of participant demographics is provided in Table 1.

A total of 130 teachers participated in the study, with data collected through a designated data collection tool. However, the data underwent a single-case analysis (Creswell & Creswell, 2017), and entries lacking metaphors were excluded. Consequently, the final sample size comprised 100 participants. The participant pool from Turkey was predominantly composed of two age groups: 31-35 years old and 41-45 years old. Conversely, the South African participants primarily fell within the age ranges of 20-25 years old and 26-30 years old.

Table 1. Demographic characteristics of the participants

Demographic Characteristics	**Groups**	**f**	**f**
Country		Turkey	South Africa
Gender	Male	33	17
	Female	17	33
Age	20-25	0	9
	26-30	4	9
	31-35	14	6
	36-40	12	1
	41-45	14	4
	46-50	5	7
	51-56	1	8
	56-and above	0	6
Working School	Primary	3	20
	Middle	34	13
	High	13	17
Working years category	0-5 years	6	20
	6-10 years	6	3
	11-15 years	15	4
	16-20 years	10	7
	21-25 years	10	7
	26-30 years	1	3
	31-35 years	2	6
Graduation	Bachelor's in Education	43	33
	Master's in Education	7	15
	Ph.D.	0	2
Branch	Arts	0	1
	Commercials	0	2
	Languages	6	21
	Mathematics	1	8
	Sciences	2	8
	Social Sciences	8	4
	Information Technologies	33	6
Total		50	50

Data Collection and Analysis

This study employed an online survey instrument to explore metaphors utilized by teachers in Turkey and South Africa concerning the concept of "Innovative Education." The data collection tool was developed using Google Forms (https://forms.gle/a1zvypY7xJLMdb9E9). The survey link was distributed via email to teachers in both countries.

The first section of the survey captured participants' demographic information, including gender, age, school affiliation, years of experience, educational background, and subject area (adapting demographic categories from [reference for demographic data collection in educational research]). In the second section, participants were prompted to complete the sentence stem "Innovative Education is similar to/like _____ because _____" to elicit their metaphors for "Innovative Education". As noted by Saban (2009), metaphors in educational research often utilize "like" to connect the target concept (subject of the metaphor) with the comparative concept (source of the metaphor). The "because" clause serves to provide justification or a rationale for the metaphors employed by the participants (Saban, 2009). All metaphors were recorded in a dedicated column and subsequently sorted alphabetically. To ensure anonymity, teachers from Turkey were assigned unique codes (TT1, TT2, TT3, etc.), while those from South Africa were coded as SAT1, SAT2, SAT3, and so on.

A three-stage data analysis process was employed to examine the sources of metaphors used by teachers (put author name and year here). In the first stage, a descriptive analysis was conducted to identify and tabulate the frequency of metaphor sources used by teachers for each metaphor (put author name and year here). This involved creating tables that documented the prevalence of specific source domains referenced by teachers in their metaphorical explanations. The second stage involved a closer examination of the relationships between the metaphorical target and source domains (Lakoff & Johnson, 1980). This analysis aimed to identify metaphors

Table 2. Metaphors of teachers in Turkey and South Africa

Teacher Representing Metaphor					
Turkey			**South Africa**		
Metaphor Code	**Metaphor Name**	**f**	**Metaphor Code**	**Metaphor Name**	**f**
M1	Adventure	1	SAM1	Art	1
M2	Air	1	SAM2	Baby	1
M3	Artificial Intelligence	2	SAM3	Bridge	1
M4	Butterfly	1	SAM4	Bus	1
M5	Catalyst	1	SAM5	Cake	1
M6	Change	1	SAM6	Car engine	1
M7	Chocolate	1	SAM7	Cell	1
M8	Clock	1	SAM8	Computer	1
M9	Compass	1	SAM9	Constructive learning	1
M10	Crescent wrench	1	SAM10	Creativity	4
M11	Difference	1	SAM11	Digital world	1
M12	Flower	1	SAM12	Doctor	1
M13	Infinity	1	SAM13	Dream	1
M14	Innovation	2	SAM14	Dynamo	1
M15	Invention	2	SAM15	Eagle	2
M16	Lightbulb	1	SAM16	Experiment	2
M17	Locomotive	3	SAM17	Flexibility	1
M18	Mirror	1	SAM18	Forest	2
M19	Ocean	2	SAM19	Game	2
M20	Opportunity	3	SAM20	Gemstone	1
M21	Reform	1	SAM21	Hustler	2
M22	River	1	SAM22	Innovation	1
M23	Road	1	SAM23	Key	2
M24	Sea	1	SAM24	Life	1
M25	Seed	1	SAM25	Light	2
M26	Sky	1	SAM26	Map	2
M27	Space	3	SAM27	Piece puzzle	1
M28	Spring	1	SAM28	Planet	1
M29	Stream	1	SAM29	Satellite	1
M30	Student	1	SAM30	Spider web	1
M31	Sun	2	SAM31	Star	1
M32	Technology	3	SAM32	Technology	1
M33	Time	4	SAM33	Telescope	1
M34	Tree	1	SAM34	Thinkers	2
M35	Water	2	SAM35	Thinking process	1
M36	Wind	1	SAM36	Toy	1
			SAM37	Trawling net	1
			SAM38	Treasure	1
			SAM39	Vitamin	1
			SAM40	Weather	1
			SAM41	World	1
Total		53			41

lacking a clear logical connection or those deemed not to contribute to the understanding of the concept of an innovative teacher. Metaphors falling under these categories were excluded from further analysis. Finally, following the sorting process, a content analysis was conducted in the third stage. Here, metaphors with analogous features were grouped

under thematic conceptual categories (Strauss & Corbin, 1990). This stage allowed for the identification of recurring patterns and the development of a more nuanced understanding of the metaphorical sources employed by teachers.

FINDINGS

Teachers working in Turkey produced 36 valid metaphors. Teachers working in South Africa produced 41 valid metaphors. Turkish participants produced the time (f=4), opportunity (f=3) and locomotive (f=3) metaphors the most, while South African participants produced the creativity (f=4), eagle (f=2), experiment (f=2), forest (f=2), game (f=2), hustler (f=2), key (f=2), light (f=2), map (f=2) and thinkers (f=3) metaphors. The cross-national nature of the participating teachers resulted in a variation in the metaphors generated. However, when examining metaphors specifically related to innovative education, a convergence emerged between the two countries. Both groups of participants utilized metaphors centered on innovation and technology. This section will delve into the specific categories that emerged from the teachers' metaphors concerning the concept of "innovative education."

This research investigates and compares the perceptions of innovative education held by teachers in Turkey and South Africa. The study employs metaphorical language within four pre-determined categories: Vision, Process, Novelty, and Value. These categories are informed by the characteristics of diffusion of innovation, as outlined by Rogers (2003).

Vision

A vision can be defined as a desired future state that is not currently achieved but is actively pursued. In the context of education, a vision statement represents the ideal that the educational system strives to attain. This category encompasses statements generated by teachers participating in the research, specifically two teachers from Turkey and four teachers from South Africa.

Data presented in Table 3 reveals that participants employed various metaphors which construe innovation as an anticipated phenomenon (expectancy theory). For instance, the sample expressions used by Turkish teachers imply a positive perception of educational innovation, framing it as something desirable and advantageous (relative advantage) (Rogers, 1995). This is exemplified by statements like "'life depends on it'". In contrast, the metaphors used by South African teachers introduce an element of complexity. Words like "'hustle'" and "'you never know the outcome'" suggest that achieving innovation may be challenging.

Process

A process is ever evolving and as it does, it helps solve educational problems and improve practice. This category consists of statements produced by 21 teachers who participated in the research in Turkey and 6 teachers from South Africa.

As shown in Table 4, teachers working in Turkey produced a significantly higher number of metaphors in the process category compared to their counterparts in South Africa. This emphasis on process implies a perception of continuous improvement, which aligns with the innovation characteristics of compatibility and relative advantage outlined in Rogers' (2003) theory of diffusion of innovations [1]. The metaphors themselves used by teachers substantiate this notion of continuous change, with examples including 'renew' (TT28), 'keeps changing for better' (SA49), 'no end to it' (TT36), and 'we need it all the time' (TT2) (see Table 4). These metaphors suggest that teachers view teaching as a process that is constantly evolving and requires ongoing improvement.

Novel

Novel is a word that refers to something new and that is a result of creativity. This category consists of statements produced by 4 teachers from Turkey and 6 teachers from South Africa.

Table 5 reveals that participants generated distinct metaphors when describing the novel category. The justifications provided by the South African teachers (SAT) suggest a perception of innovation as a replacement for outdated practices. Their metaphors, such as "create flavour" (SAT5) and "students develop their creativity and problem-solving skills" (SAT44), align with the emerging 21st-century attributes identified by Güçlü Yılmaz (2021, p. 175) – attributes that emphasize "producing new and different, effective and beautiful products" (Güçlü Yılmaz, 2021, p. 175). This aligns with Rogers› (1995) concept of compatibility, as the innovation is perceived as consistent with current values.

Table 3. Metaphors and expressions related to the vision

Vision			Sample Expressions
Metaphor	**Turkey**	**South Africa**	**Because**
	f	**f**	
Hustler	-	1	*"A hustler finds creative ways of bringing in results. "SAT27*
Innovation	-	1	*"You never know the outcome but you have to try." SAT28*
Planet		1	*"It waits to be discovered." SAT37*
Sea	1	-	*"It contains many treasures waiting to be discovered."TT30*
Seed	1	-	*"It's hope, it's life, it's the future." TT31*
Telescope	-	1	*"We can see different planets." SAT2*
Total	2	4	

Table 4. Metaphors and expressions related to the process category

Process			Sample Expressions
Metaphor	**Turkey**	**South Africa**	**Because**
	f	**f**	
Adventure	1	-	*"It presents the unknown." TT1*
Air	1	-	*"We need it all the time." TT2*
Artificial Intelligence	2	-	*"It learns all the time." TT3* *"Intelligence now has different frameworks." TT4*
River	1	-	*"It requires constant improvement and renewal." TT28*
Road	1	-	*"It's a long process." TT29*
Sky	1	-	*"It is constantly changing and evolving." TT32*
Space	3	-	*"It requires constant research and discovery." TT35* *"There's no end to it." TT36* *"Everywhere we look, we see information we need to know." TT37*
Spring	1	-	*"It diversifications and prospers as time passes." TT36*
Stream	1	-	*"It continues nonstop." TT37*
Student	1	-	*"Innovation and learning never end!" TT38*
Technology	3	-	*"It helps to learn." TT41* *"It develops and changes." TT42* *"It is changing and evolving." TT43*
Time	3	-	*"It changes all the time." TT44, TT46* *"It won't stand still." TT45*
Tree	1	-	*"It constantly produces, he grows as long as he produces, he feeds as he grows."TT46*
Wind	1	-	*"It never ends, the process and the process need to be constantly progressed as a person." TT50*
Baby	-		*"It constantly learns and develops." SAT2*
Car engine	-	1	*"It keep it running and controls the performance." SA6*
Cell	-	1	*"It constantly renews itself." SA7*
Life	-	1	*"Life is an innovative learning process." SA31*
Toy	-	1	*"Kids learn quicker when they having fun." SA45*
Weather	-	1	*"It keeps changing for the better." SA49*
Total	21	6	

Table 5. Metaphors and expressions related to the novel category

Novel			Sample Expressions
Metaphor	**Turkey**	**South Africa**	**Because**
	f	**f**	
Invention	2	-	*"Everyone has different connotations." TT17* *"It's about uncovering something new to satisfy a need." TT18*
Opportunity	1	-	*"It'll be the first time." TT26*
Reform	1	-	*"It requires change and innovation." TT27*
Art	-	1	*"It produces new ideas, new products." SAT1*
Cake	-	1	*"It is to create flavor with different materials." SAT5*
Dynamo	-	1	*"It generates fresh ideas in education." SAT17*
Forest	-	2	*"There are many different types in it." SAT22* *"It has different and new species." SAT23*
Thinking process	-	1	*"It helps students develop their creativity and their problem solving skills." SAT44*
Total	4	6	

A contrasting perspective emerges from the metaphors employed by the Turkish teachers (TT), which appear to prioritize the trialability aspect (Rogers, 1995). Their conceptualization of educational innovation aligns with notions

Table 6. Metaphors and expressions related to the valuable category

Valuable			Sample Expressions
Metaphor	**Turkey**	**South Africa**	**Because**
	f	**f**	
Butterfly	1	-	*"When the time comes, he also develops himself into a cocoon and becomes a butterfly, flying higher." TT5*
Catalyst	1	-	*"Accelerates change." TT6*
Chocolate	1	-	*"It makes people happy." TT8*
Clock	1	-	*It has to keep up with the flow of time." TT9*
Compass	1	-	*Innovative education also guides everyone under the umbrella of education" TT10*
Crescent wrench	1	-	*"It serves every area needed." TT11*
Difference	1	-	*"To be able to update yourself." TT12*
Flower	1	-	*"Attractive." TT13*
Infinity	1	-	*"It's vast." TT14*
Innovation	2	-	*"Those who don't follow innovations fall behind." TT15* *"It makes it easier to learn." TT16*
Bridge	-	1	*"New training methods are developed. It establishes a link between information." SAT3*
Bus	-	1	*"It aims to change the traditional way of educating." SAT4*
Computer	-	1	*"It gives learners a lot of knowledge." SAT9*
Constructive learning	-	1	*"It is learner centric." SAT10*
Creativity	-	3	*"You adjust with changing situations reflect." SAT11* *"It gives learners an opportunity to think independently." SAT12* *"Learners are diverse, catering for diversity." SAT13*
Digital world	-	1	*"It changes learning." SAT14*
Doctor	-	1	*"You cater for all your students or you do what's best for them." SAT15*
Eagle	-	1	*"It can help you soar high." SAT18*
Experiment	-	2	*"We option new finding." SAT19* *"It produces new results every day." SAT20*
Flexibility	-	1	*"It provides comfort in the learning process and research." SAT21*
Game	-	2	*"It is a search for treasure boxes of knowledge, leveling up and mastery of skills." SAT24* *"Making Education lovable and enjoyable."SAT25*
Gemstone	-	1	*"Gemstone - difficult, but good."SAT26*
Key	-	2	*"Through education can achieve anything you want to do in life." SAT29* *"It opens all closed doors." SAT30*
Light	-	2	*"it illuminates life." SAT32* *It brightens every dark life." SAT33*
Map	-	2	*"It connects the learning dots for learners and allows them to reach a particular destination. In terms of knowledge and catering to different styles of learning." SAT34* *"It guides learning." SAT35*
Satellite	-	1	*"It constantly receives new developments and transmits them to the necessary places according to the needs." SAT38*
Spider web	-	1	*"It encourages brain to think & solve in many different ways." SAT39*
Star	-	1	*"It lights up our lives so we can move and reach our various destinations/ careers in life." SAT40*
Technology	-	1	*We living in a digital world, everything is online and already most people find it easier to use technologies and navigate the internet." SAT41*
Thinkers	-	1	*"They can analyze the situation and solve problems." SAT43*
Trawling net	-	1	*"It is adaptable and able to capture (accommodate) and enlighten a plethora of students of varying abilities." SAT46*
Treasure	-	1	*"It contains a deep level of education." SAT47*
Vitamin	-	1	*"It gives energy to people." SAT48*
World	-	1	*"It harbors everything." SAT50*
Total	11	32	

Table 7. Turkish and South African teacher attributes of education innovation

Categories	Turkey	South Africa
Vision	Relative Advantage	Complexity
Process	Relative Advantage Compatibility	Relative Advantage Compatibility
Novelty	Relative Advantage Trialability	Relative Advantage Compatibility
Value	Relative Advantage	Relative Advantage Trialability

of "invention" (TT17, TT18) or "reform" (TT27) targeted at fulfilling a specific "need" (TT18). The perception of educational innovation as beneficial amongst teachers from both countries resonates with Rogers' (1995) concept of relative advantage.

Valuable

This category demonstrates how teachers perceive innovative education as of value. This category consists of statements produced by 11 teachers who participated in the research in Turkey and 32 teachers from South Africa.

As shown in Table 6, teachers from South Africa utilized metaphors categorized as "valuable" more frequently than their Turkish counterparts. These metaphors often centered on innovation as a mechanism that encapsulates and fosters positive outcomes in teaching and learning. In contrast, Turkish teachers emphasized the indispensable value of innovation, highlighting its benefits for both individual instructors and the educational system as a whole. Their justifications for the metaphors included phrases like "'It serves every area needed' (TT11)" and "'To be able to update yourself"' (TT12). This perspective aligns with the concept of relative advantage as defined by Rogers (1995). South African teachers, on the other hand, predominantly linked the concept to improved learning and adaptability. They emphasized the benefits for learners, suggesting that innovation possesses both relative advantage and the attribute of trialability as outlined by Rogers (1995).

DISCUSSION, RECOMMENDATIONS AND CONCLUSION

In this research, the metaphors obtained from the explanations written by the teachers were grouped into the categories, "vision", "process", "novel", and "valuable". These categories have been aligned with Rogers and Shoemaker's (1971) attributes of innovations to try and make sense of their experiences as follows:

This study suggests that most teachers from both countries perceive educational innovation as a relative advantage. This aligns with Núñez et al. (2022) who argue that teachers, in general, are accustomed to adapting to systemic changes, regardless of their complexity. However, the perspectives of the four South African teachers whose explanations appeared to portray innovation as a source of complexity seem to contradict these findings. This discrepancy warrants further investigation, particularly considering research by Maepa (2017) and Mbatha (2016) which highlights the challenges South African teachers face when implementing system-imposed innovations. A cross-national study revealed that teachers in both Turkey and South Africa utilized metaphors to conceptualize innovative. In the South African context, metaphors centered on vision depicted innovative education as an aspiration yet to be realized. A limited number of teachers (n = 6) employed the metaphor of a vision, suggesting they perceive innovative education as an ideal that awaits implementation. This perspective contrasted with the views held by a smaller group of Turkish teachers (n = 2) who viewed innovative education as a vision that shapes the future of the field.

Conversely, a larger portion of Turkish teachers (n = 14) conceptualized innovative education as a continuous process intrinsically linked to lifelong learning. They emphasized the ongoing, research-driven nature of this process, employing metaphors that likened it to life itself. This emphasis on continuous learning aligns with the notion of innovation as the generation of knowledge (Drucker, 1993, p. 173). Further research is necessary to explore the additional metaphors employed by South African teachers, particularly those that associate innovative education with "Space" and its connection to "good" and dynamism.

This study found that South African teachers produced more metaphors categorized as "valuable" compared to their Turkish counterparts. This finding might be related to the historical context of South Africa's Bantu education system, which primarily focused on equipping the black majority with basic literacy skills for "semi-skilled" jobs (Giliomee, 2009). This legacy has presented ongoing challenges for the South African education system, as many teachers went through this system (Gallo, 2020). Consequently, it is plausible that South African teachers' metaphors resonate more with variables associated with "relative advantage" and "complexity" within Rogers' (1995) diffusion of innovation model. In this context, innovation is perceived as valuable because of its potential to transform the education sector and ultimately lead to equal access to quality education.

A comparative analysis of teacher metaphors used in educational contexts reveals potential connections between national educational structures and pedagogical approaches (Kırkgöz, 2008; Güçlü Yılmaz, 2021). In Turkey, with its over a century of independent governance, teachers employ a higher frequency of process-oriented metaphors (as evidenced in the current study). This finding aligns with the nation's evolving educational system, which actively incorporates Western influences and emphasizes continuous improvement (Atipler et al., 2023). The focus on process within the metaphors used by Turkish teachers resonates with Roger's model, where compatibility and observability are central tenets. This suggests a potential link between a dynamic educational framework and the selection of metaphors that prioritize ongoing development within the learning environment.

This study highlights the significant influence of teachers' prior educational experiences on their perception of

educational innovation. The findings suggest a potential alignment between participating teachers' political ideologies shaped by past experiences and their views on innovative practices in education. The data collection period coinciding with the COVID-19 pandemic might have contributed to the prevalent perception of educational technology as a relevant advantage, given the dramatic shift towards digital learning during this time (Purwanto & Sulaiman, 2023). While existing literature acknowledges shortcomings in South African teacher training and support (Du Plessis & Letshwene, 2020), it is plausible that teachers who found the innovations intricate struggled more in the absence of prior technological exposure. Future research could benefit from including a larger sample of teachers from diverse educational contexts to ascertain factors impacting the rate of innovation adoption. This would allow for a more nuanced understanding of implementation gaps and the development of targeted interventions. Such insights could ultimately inform discussions on teacher preparation for innovation, potentially accelerating the desired educational transformation.

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