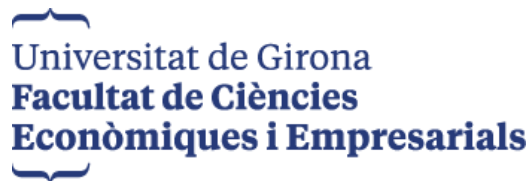


THE IMPORTANCE OF EMOTIONAL INTELLIGENCE ON
TEAM COHESION TO ENHANCE TEAM PERFORMANCE:
A SYSTEMATIC REVIEW.

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Abstract

Background: In business contexts, there is a growing interest in intelligences other than the logical mathematical one, such as Emotional Intelligence (EI) in working teams. The aim of this research is to study the relationships between the EI, Team Cohesion (TC), and Team Performance (TP) constructs, through a systematic review of the relevant literature.

Methodology: A bibliographic search was firstly carried out in the Web of Science, Scopus, ProQuest and PUBMED databases including studies based on evaluating the relationship between EI, TC and TP. Only scientific articles were included.

Results: Only five studies were found. They had different objectives but linked the results of EI and TC with TP constructs. Two of them worked with leaders EI and three with group EI. Other mediators and moderators were included in the collected studies.

Conclusions: All the studies have found significant relationships between the three concepts. Nevertheless, different mediators have been used in the research. Higher quality studies must be done to corroborate the effect of EI and TC on TP.

Keywords: Emotional intelligence, Team performance, Team cohesion, Systematic review

Highlights

- Globalisation requires new management techniques.
- EI might have a good impact on TC and TP.
- Over the last 20 years there is a growing interest in EI.
- Different types of EI constructs can be linked to better achievements.
- Further and more reliable research is needed in this field.

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1. Introduction

In recent years, new theories, and methods to improve performance in firms have been emerging. The market requires maximum effort and productivity since all the industries are highly competitive. Thus, any slight improvement can make the difference.

Until the end of the twentieth century, only technical abilities and logical mathematical intelligence were taken into account when it came to creating teams and choosing leaders. As a general rule, companies are made of people, hence Salovey and Mayer (Salovey and Mayer, 1997) create the concept of Emotional Intelligence (EI) that defined as “the ability to monitor one's own and others' feelings and emotions, to discriminate among them and use this information to guide one's thinking and actions”. They defined a 4 steps model to be an emotionally intelligent manager: read people: identifying emotions; get in the mood: using emotions; predict the emotional future: understanding emotions; and last but not least, do it with feeling: managing emotions. However, it was not until Goleman's book (Goleman, 1995) was published that this concept became famous. Goleman believes that EI is not a personality attribute, but a skill that can be learned and improved. Goleman firstly defined five components of EI, even though his final theory only included four. Since then, some research has been performed to observe the impact of EI in TC and TP.

There are two types of EI in our literature. Firstly, EI was studied at the individual level. Nevertheless, since the importance of EI in team effectiveness has been highlighted, Group Emotional Intelligence (GEI) (Druskat and Wolf, 2001; Black et al., 2019), also known as Team Emotional Intelligence (TEI) (Kim and Ko, 2021) or Collective Emotional Intelligence (CEI) (Curseu et al., 2015) were also studied. CEI, TEI and GEI will be used as synonyms in this study. GEI goes further than individual EI of team members, because it not only includes the individual intelligence of the team members, but also the norms that create awareness of the emotions to regulate group behaviour (Druskat and Wolff, 2001; Curseu et al., 2015).

Another important aspect to be considered is the Team Cohesion (TC), that is defined as the members desire to forge and maintain social bonds (Carron and Brawley, 2000; Black et al., 2019) and sometimes as the team members' level of attraction to the team and desire to maintain their affiliation (Hogg and Hains, 1996; Black et al., 2019). A lot of research has been done to study the importance of TC in working environments. Some studies proved that TC has a positive impact on TP (Evans and Dion, 2012). It is Team Performance (TP) that measures the level of achievement and productivity of a team.

Several empirical studies have measured the impact on EI and TC into performance. As a matter of fact, other concepts have been linked to the discussed one. For instance, the effect of the percentage of women (PW) has been observed (Curseu et al., 2015; Kim and Ko, 2021) in some studies.

The aim of this research is to study the relationships between the EI, TC and TP, through a systematic review of the relevant literature. We conducted this study to see if there is a significant improvement in TC in emotional intelligent groups and if it is conducive to better TP. To achieve our aim we performed a systematic review of all the relevant published studies that have analysed the relationship between the three concepts. We only included articles written in English, since the most prestigious magazines publish in this language, but we used several databases to have better results.

2. Methodology

The present review follows the PRISMA (Preferred Reporting Items for Systematic reviews and Meta-analyses) structure and guidelines for publishing systematic reviews (Liberati et al., 2009; Urrútia and Bonfill, 2010; Hutton et al., 2015; Page et al., 2020).

2.1. Eligibility criteria

We followed the PICOS (Participants, Interventions, Comparisons, Outcomes, Study design) structure to define the eligibility criteria. The literature review includes all types of designs published in scientific articles, book chapters or books. Nonetheless, master thesis or PhD written reports have been excluded (S). All types of participants were considered (P). We looked for studies with or without control group (C) and the outcomes must be relevant to the study, hence only the ones that measure TC, EI, TP constructs, their mediators and their relationships were added (O).

2.2. Information sources

The bibliographical review was carried out in the following databases.

Web of science, 9th of March of 2022. The core collection we used covers over 82 million records and more than 126,000 books. It includes documents from 1900 until the present. It takes into account the impact factor. Search in *All fields*.

Scopus, 23rd of March of 2022. It includes more than 84 million records, from 1974 until the present. Search in *Abstract, Title and Keywords*.

ProQuest, 23rd of March of 2022. It includes 4 databases: Coronavirus Research Database, MEDLINE (1946-present) Publicly Available Content Database and Sociological Abstract (1952-current). Search in *Anywhere*.

PUBMED/MEDLINE (1871-Present), 23rd of March of 2022. Search in *All fields*.

2.3. Search strategy

The following Boolean keywords were used in all the searches:

Emotional intelligence AND Team cohesion AND Team performance.

2.4. Study selection

Jordi Balagué i Canadell and Marçal Uriach i Quiñoa eliminated the duplicates, analysed the titles and the abstracts, and selected the papers to study in depth. They decided by mutual agreement which of the articles were included in the systematic review. There were no discrepancies in the selection.

2.5. Data items

The PICOS criteria was followed for the data extraction. The sample, age, gender, and extra information about the population that was considered relevant has been written down. No control groups were found. When an element was not found, it was not added on the table.

2.6. Risk of bias in individual studies

Following the example of Noetel et al (2019) and Balagué et al. (2021) systematic reviews and as suggested for the PRISMA guideline (Liberati et al., 2009; Urrútia and Bonfill, 2010; Hutton et al., 2015; Page et al., 2020) we followed the Cochrane bias assessment (Higgins and Altman, 2008).

3. Results

3.1. Study selection

A total of 72 articles were found (29 Web of Science; 13 Scopus; 20 ProQuest; 10 PUBMED) after the database search. 16 articles were removed for being duplicated. After reading all the abstracts from the

remaining articles, 43 articles were excluded because they were beyond our goals. 7 articles were removed after reading the full text because they did not belong to our objective and another one for not being a scientific article but a PhD thesis. Finally, only 5 articles were kept for our systematic review.

A flux diagram scheme of the selection process can be seen in Figure 1.

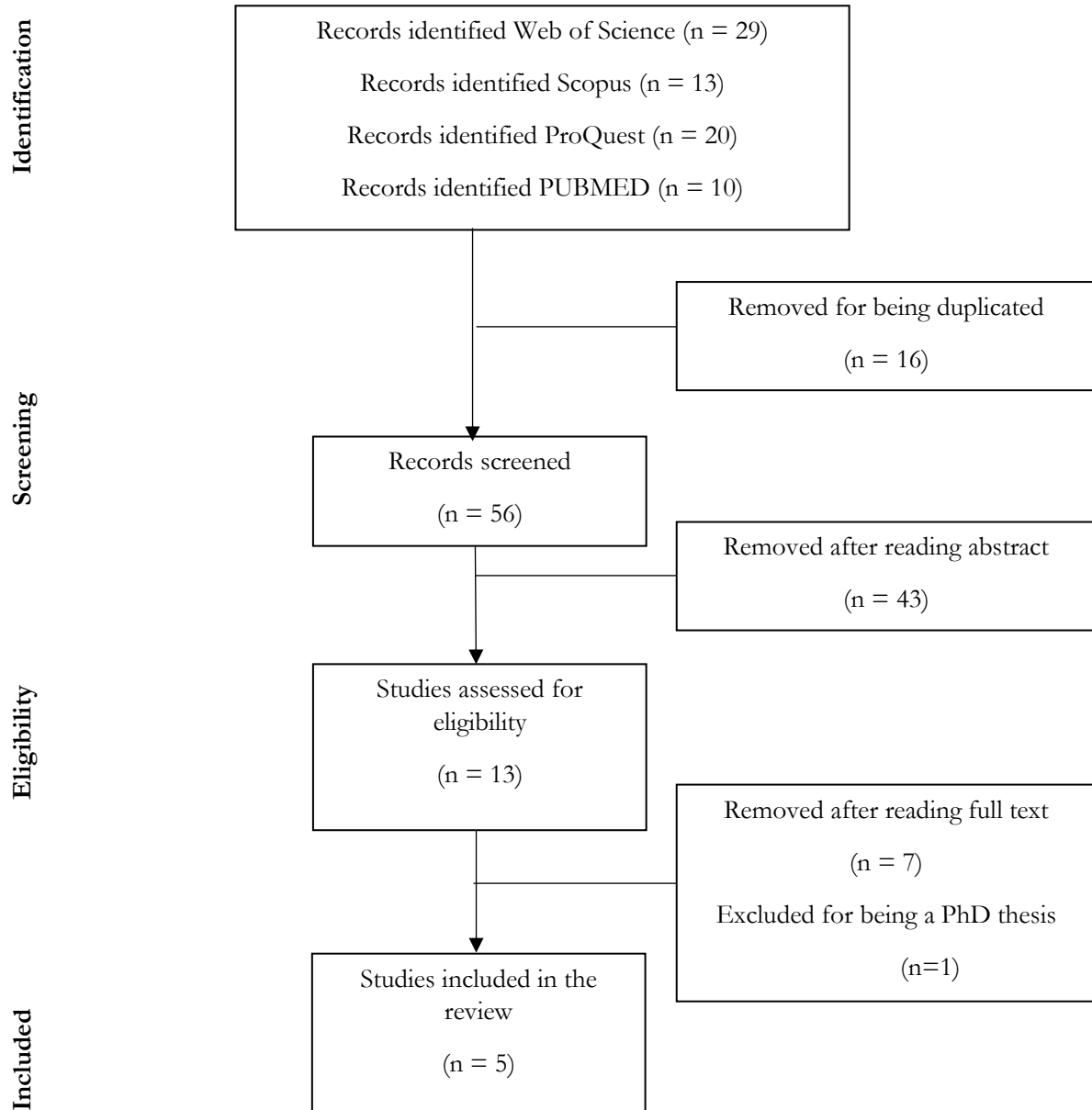


Figure 1: Flow diagram of the study selection process

3.2. Study characteristics

Most of the articles selected are observational studies. Two of them were done in the US and three of them in South-East Asia. Both American studies used a business simulation course called Capsim. Both did a quasi-experimental study. The summary of the articles can be found in Table 1.

A total of 2956 people took part in the experiments of the included studies. 493 were Business students, 2146 workers and 317 managers or group leaders. All the studies analyse the relationship between different inputs with TP. All of them include EI or TC in the study. All the studies but two analyse the relationship between group EI with the other factors. The two remaining articles observe the leader's EI. As it can be expected, all the articles have been published over the last decade. The gender has been collected in all the articles. Nevertheless, the average age of the participants and the ethnicity has only been considered in two studies. However, other characteristics such as average tenure in the firm or in the team and academic background have been considered in the other studies.

On the one hand, the TP has been assessed by tests in two of the articles. On the other side, the remaining articles measured the performance collecting financial data or sales results. We would like to emphasize the fact that different versions of the WLEIS scale were chosen in all the studies. Mostly different scales were selected in several studies to measure the other outcomes.

Table 1: Summary of included studies

Reference	Study design	Participants (target, sample, size: N)	Comparison	Intervention	Objectives	Outcome measures	Outcome results
Kim and Ko (2021)	Quasi-experimental	347 senior Business students 81 teams (4-5 members per team) USA 47% men and 53% women 25.2 average age 46% White, 20.7% Hispanic, 16.7% African American, 11.1% Asian 4.8% other	-	Capsim (Business simulation)	Test mediator effect of SE and Trust between EI and TC. Examine the relationship between TC and TP.	WLEIS (2004) SESSB MATS MTCS NP PW	<p>↑WLEIS (2004) → ↑MTCS ($\beta = 0.22, p < 0.01$)</p> <p>↑WLEIS (2004) → ↑SESSB ($\beta = 0.45, p < 0.01$)</p> <p>↑SESSB → ↑MTCS ($\beta = 0.39, p < 0.01$)</p> <p>↑WLEIS (2004) → ↑MATS ($\beta = 0.17, p < 0.05$)</p> <p>↑MATS → ↑MTCS ($\beta = 0.11, p < 0.05$)</p> <p>↑MTCS → ↑NP ($\beta = 0.27, p < 0.01$)</p> <p>↑WLEIS (2004) → ↑SESSB → ↑MTCS</p> <p>↑WLEIS (2004) → ↑MATS → ↑MTCS</p> <p>PW→WLEIS (2004) NO SIGNIFICANT RELATIONSHIP</p>
Zhang et al. (2020)	Observational	64 teams (average group size 3.31.) from different industries. Taiwan 64 group leaders (67.9% male) 197 subordinates (52.4% male) Average group tenure 3 years.	-	-	Investigate dynamic mediating mechanisms that link Leader EI with TP	WLEIS (2002) TTPI PTCS PGFCDRS	<p>↑WLEIS (2002) → ↑PTCS ($\beta=0.56, p<0.001$)</p> <p>↑PTCS → ↑TTPI ($\beta=0.25, p<0.01$)</p> <p>↑WLEIS (2002) → ↑TTPI ($\beta=-0.13$)</p> <p>↑WLEIS (2002) → ↑PTC → ↑TTPI ($\beta = 0.14, p = 0.049$)</p> <p>↑WLEIS (2002) → ↑PTC → ↑PGFCDRS ($\beta = 0.14, p = 0.049$)</p> <p>↑WLEIS (2002) → ↑PGFCDRS ($\beta = 0.7, p = 0.000$)</p>
Black et al. (2019)	Quasi-experimental	146 Senior Business major students (35 teams) USA 50% male and 50% female 25.2 average age 46.8% White 20.7% Hispanic 16.7% African American 11.1% Asian 4.8% others	-	Capsim (Business simulation)	Examine empirically the effect of emotional intelligence on the team cohesion, self-efficacy and team performance.	WLEIS (2004) MTCS SESSB ROE PESTPA PESTPQWP	<p>↑WLEIS (2004) → ↑MTCS ($\beta=0.45, p<0.05$)</p> <p>↑MTCS → ↑ROE ($\beta=0.36, p<0.05$)</p> <p>↑WLEIS (2004) → ↑SESSB → ↑MTCS ($\beta=0.21$)</p> <p>↑SESSB → ↑MTCS ($\beta=0.54$)</p> <p>↑WLEIS (2004) → ↑SESSB ($\beta=0.52$)</p> <p>↑MTCS → ↑PESTPA ($\beta=0.31, p<0.05$)</p> <p>↑MTCS → ↑PESTPQWP ($\beta=0.37, p<0.05$)</p>

Lu and Fan (2017)	Observational	<p>338 employees from different industries Taiwan 51.2% female 33.25 average age 56.8 % bachelor's degree and 39.6% master's degree Average tenure in organization 4.78 years. Average tenure in the team 4.89 years. Average team size 7.89 people</p>	-	-	<p>Explore critical psychological mechanisms transforming team inputs into successful work outcomes at the individual level.</p>	<p>WLEIS (2002) GIS HTPS DLPFS JSMO AQ</p>	<p>↑DLPFS→↑WLEIS (2002) → ↑ GIS (WLEIS moderator) ↑DLPFS → ↑ GIS → ↑HTPS ↑ GIS → ↑HTPS (β = 0.57, p < 0.01) ↑WLEIS (2002)→ ↑ GIS ↑DLPFS → ↑GIS→ ↑ JSMOAQ ↑GIS→ ↑ JSMOAQ (β = 0.35 p < 0.01) ↑DLPFS→↑WLEIS (2002) → ↑ JSMOAQ (WLEIS moderator) ↑DLPFS→↑WLEIS (2002) → ↑ HTPS (WLEIS moderator)</p>
Wilderom et al. (2015)	Observational	<p>253 managers and 1611 employees from 261 retail stores from an electronics chain (from 4 to 16 employees per store) South Korea Managers: 99% men 42 years old average 98% had worked for the firm for more than 7 years 53% had worked in their current stores between one and three years 45% had at least a Bachelor's degree. Employees: 54% men 28 years old average 54% high school diploma 45% completed college 50% had worked for the firm for more than three years and two years for their current store.</p>	-	-	<p>Measure empirically whether the EI of managers is associated with TP.</p>	<p>WLEIS (2002) modified WTCS SR SDEBDS modified</p>	<p>WLEIS (2002) modified→ SR (r=0.7, p>0.5) NO SIGNIFICANT RELATIONSHIP WLEIS (2002) modified→ ↑WTCS → ↑SDEBDS modified (β=0.20, p<0.01) ↑ WLEIS (2002) modified → ↑WTCS (β=0.36, p<0.001) WLEIS (2002) modified → ↑SDEBDS modified→ ↑SR (β=0.26,p<0.001) ↑WLEIS (2002) modified → ↑SDEBDS modified (β=0.15, p<0.05) ↑WTCS → ↑ SDEBDS modified (β=0.23, p<0.001) WTCS → ↑SDEBDS modified→ ↑SR (β=0.26,p<0.001) WLEIS(2002) modified → WTCS → ↑SDEBDS modified→ ↑SR (β=0.25,p<0.001)</p>

Key

DLPFS=Deep-Level Psychological Fitness Scale (psychological similarity)
GIS=Group Integration Scale
HTPS= Hoegl et al. Team Performance Scale
JSMOQ=Job Satisfaction Michigan Organizational Assessment Questionnaire
MATS=McAllister Trust Scale
MOAQ=Michigan Organizational Assessment Questionnaire (Job Satisfaction)
MTCS=Michalisin Team Cohesion Scale
NP=Net Profit
PESTPA=Peer Evaluation System Team Performance Accountability
PESTPQWP=Peer Evaluation System Team Performance Quality of Work
Performance
PGFCDRS=Person-Group Fit Cable and DeRue Scale
PTCS=Price Team Cohesion Scale
PW=Percentage of Women
ROE=Return On Equity
SDEBDS=Sales-Directed Employee Behaviour Dubinsky Scale
SESSB=Self-Efficacy Scale Schwarzer and Born
SR=Sales Result
TTPI=Tjovold Team Performance Items
WLEIS= Wong and Law Emotional Intelligence Scale
WTCS=Wilson et al Team Cohesion Scale

3.3. Risk of bias within the studies

All the studies have a high risk of bias because they are observational studies or they lack a control group. Thus, none of the included articles are suitable for a meta-analysis study.

3.4. Results of individual studies

Kim and Ko (2021). IMOI (Input-Mediator.Output-Input) model was used to test the mediator effect of SE and trust between EI and TC. Moreover, the relationship between TC and TP was examined.

347 students from a University from the USA divided in 84 teams participated in a business simulation called Capsim. EI data was collected after the trial rounds. SE and trust was measured after the fourth scored round (4th round out of 8). TC was evaluated at the end of the Capsim. TP was analysed through net profit results measured at the end of each round.

EI of the participants was measured through Law et al's (2004) 16-item scale. It measured four dimensions: self-emotional appraisal, other's emotional appraisal, use of emotion and regulation of emotion. TC data was collected through Michalisin et al's (2004) TC perception scale. The TC scale calculated to what extent the members of the team work together to achieve the final objective. To measure trust perception, the McAllister's (1995) scale was used. Trust is defined as the willingness of individuals to expose themselves or become vulnerable (Butler,1999). SE was measured using Schwarzer and Born's (1997) 10-item scale. SE is the belief in one's own ability to achieve desired outcomes (Bandura, 1997).

The results showed that Trust and SE partially mediate the relationship between EI and TC. In addition, it was also proven that TC is strongly related to TP. The first hypothesis was that EI can predict TC and it was confirmed ($\beta = 0.22$, $p < 0.01$). It was also hypothesized that Trust and SE mediate the relationship between EI and TC. Both hypotheses were supported as well because EI has a significant relationship with SE ($\beta = 0.45$, $p < 0.01$) and Trust ($\beta = 0.17$, $p < 0.05$) plus, SE ($\beta = 0.39$, $p < 0.01$) and trust ($\beta = 0.11$, $p < 0.05$) have a positive relationship with TC. Finally, the positive relationship between TC and TP was also proven ($\beta = 0.27$, $p < 0.01$). Figure 2 shows a scheme of the path analyses used for the results.

PW was also controlled. Even though it was not hypothesized, they could not find a significant relationship between PW and EI.

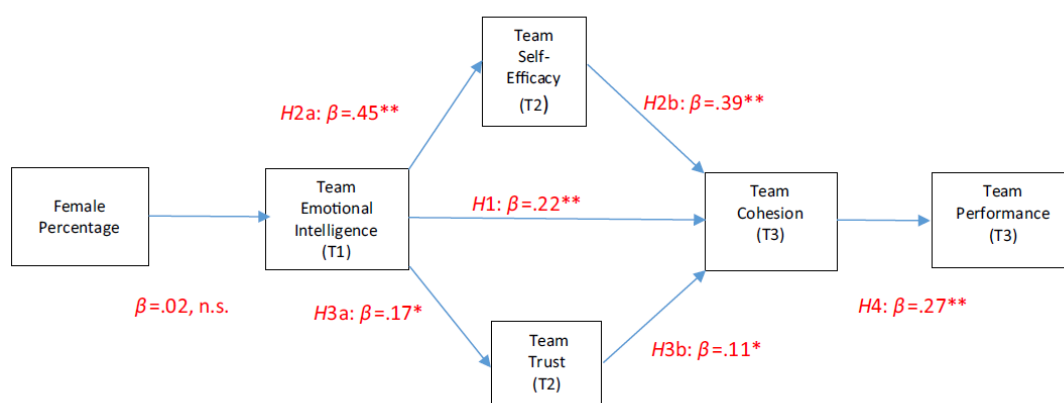


Figure 2: Scheme of the path analyses used for the results (Kim and Ko, 2021)

Zhang et al. (2020). The relationships between leader EI and TP were studied by using a IPO (Input-Process-Output) model. The effect of TC as a mediator between EI and TP was evaluated.

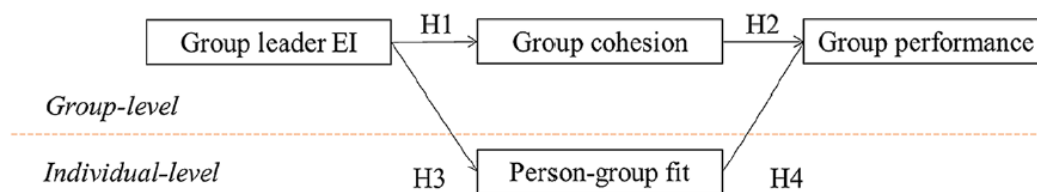


Figure 3: Theoretical model scheme Zhang et al (Zhang et al., 2020)

It was found that leader's EI can improve TP through enhancing TC. 64 teams from different firms were selected by using a convenience sampling method. Each team had a team leader and there was a total of 197 subordinates. Price TC scale (Price, 1972) was used to measure the member's commitment and interpersonal attraction to the group. Team leader EI was assessed by the WLEIS (Wong and Law, 2002) test. TC and EI tests were completed by the team members and TP by the team leader. The TP scale by Tjosvold (1988) was used to measure to what extent the members have achieved the objectives.

The positive effects of group leader EI and TC were confirmed ($\beta = 0.56$, $p = 0.000$). The mediation effect of TC between EI and TP was evaluated, and the results showed that TC is a mediator between EI and TP ($\beta = 0.14$, $p = 0.049$). The direct relationship between TC and TP is also positive ($\beta = 0.25$, $p < 0.05$).

Person-Group Fit (PGF) mediation effect was assessed by Cable and DeRue 3-items scale (Cable and DeRue, 2002). PGF refers to the consistent characteristics or complementary needs between individuals and groups that could promote the formation of a close relationship (Piasentin and Chapman, 2007; Zhang et al., 2020). The Cable and DeRue scale measured the compatibility between individuals and their group. The effects of leader EI and PGF are positive and significant ($\beta=0.70$, $p=0.000$). Moreover, the mediation effect of PGF in the link between EI and TP ($\beta=0.14$, $p=0.049$).

Black et al. (2019). This study examined empirically the effect of GEI on TC and the effect of the perception of self-efficacy (SE) on the relationship between EI and TC. It is a quasi-experimental design in which 146 students from business major studies from a University of the USA were selected to take part in a business simulation course called Capsim. They were divided into 35 teams and had to compete against each other.

After the intervention, some tests were given to the participants to evaluate their EI, TC and SE. Moreover, TP was evaluated through certain financial indicators. The EI of each team was measured as the average of the individual EI of each member. It was measured by using the scale developed by Law et al. (2004), also known as WLEIS. It is a 16-item scale that reflects four dimensions of EI: self-emotion appraisal, other's emotion appraisal, use of emotion and regulation of emotion. TC was measured by the perception of their own EI through the 16-item scale developed by Michalisin et al. (2004). The SE test, which was proven to be a mediator between TC and EI was measured by Schwarzen and Born (1997) in a test that evaluates one's own belief in their own success. TP was simply evaluated by the ROE (Return On Equity) achieved in Capsim.

The results showed the significantly positive relationship between TC and TP ($\beta = 0.36$, $p < 0.05$). The second hypothesis predicted a positive association between EI and TC. The hypothesis was supported ($\beta = 0.45$, $p < 0.001$). SE was proven to have a positive association with TC ($\beta = 0.54$, $p < 0.001$). As was explained before, SE mediation effect between EI and TC was supported ($\beta = 0.21$).

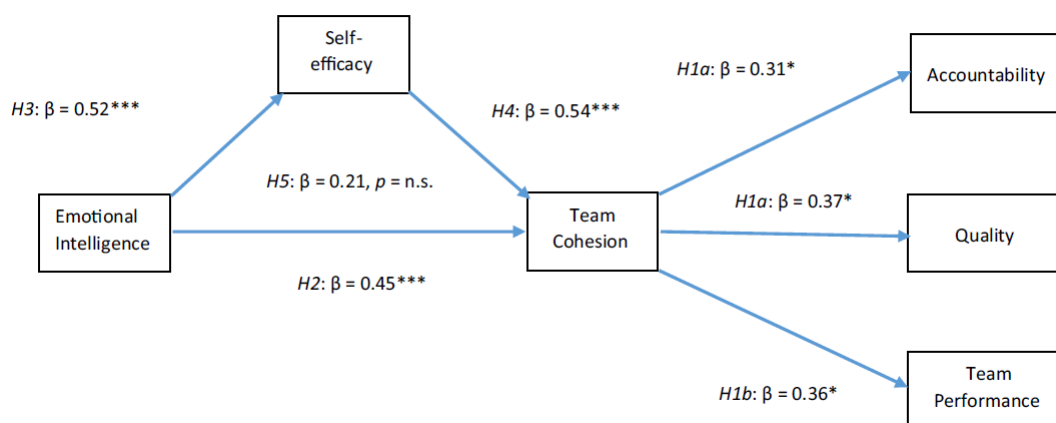


Figure 4: Path analyses results scheme Black et al. (Black et al., 2019)

Other outcomes have been measured. Even though they go beyond our goals, they are worth mentioning. Two aspects of team participation were evaluated. Accountability (PESTPA=Peer Evaluation System TP Accountability) measures “team member’s attendance, preparation for meetings and timely communication”. It was proven to be a positive relationship between TC and Accountability ($\beta = 0.31, p < 0.05$). Quality of work performance measures team member’s “preparation for meetings and timely communication. Quality of work performance measures team members’ consistent offer of high quality contributions, courteous and professional manner in team interaction, openness to hear others’ opinion and presence on the team improved our team’s performance”. The relationship between TC and quality of work performance (PESTPQWP=Peer Evaluation System TP Quality of Work Performance) was supported as well ($\beta = 0.37, p < 0.05$).

Lu and Fan (2017). The purpose of the authors of this research was to “explore critical psychological mechanisms transforming team inputs into successful work outcomes, at the individual level”. A two-phase design was performed. First it was examined the mediation effect of TC and later the moderation effect of EI. 338 Taiwanese employees from different industries took part in the experiment. It was found that perceived psychological similarity (PS) is conducive to positive outcomes like TP through TC. Moreover, EI amplified the relationship between PS and TC. In this study the individual EI of team members was measured.

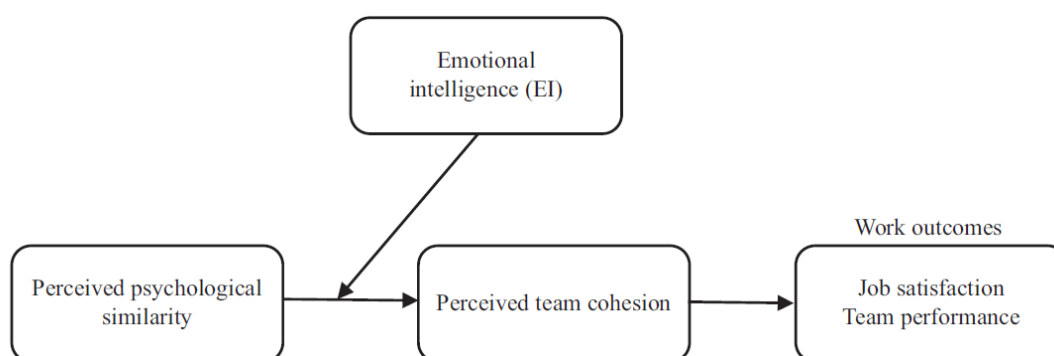


Figure 5: Research framework scheme Lu and Fan (Lu and Fan, 2017)

PS was measured with the Deep-level Psychological Fitness Scale. To evaluate TC group integration scales (Chang and Bordia, 2001; Chang et al., 2003) were used. TP was assessed by the overall performance subscale from the TP scale (Hoegl et al., 2004; Wu and Lu, 2014). The WLEIS scale (Wong and Law, 2002; Lam and O’Higgins, 2013) was used to evaluate the EI.

The results showed that PS has a significant relationship with TP and TC. It was also proven that TC has a mediation effect between PS and TP. The second hypothesis suggested the moderator effect of

EI in the link between PS and TC and it was supported. In addition, EI and TC were related ($\beta = 0.14, p < 0.01$). Thus, it is proven that higher levels of EI lead to high levels of TC. Furthermore, TC is linked to TP ($\beta = 0.57, p < 0.01$). In addition, the mediational effect of TC on the relationship between EI and Job satisfaction (JS) was supported ($\beta = 0.35, p < 0.01$). Job satisfaction was assessed by the Michigan Organizational Assessment Questionnaire ((Cammann et al., 1979; Lu et al., 2010).

Wilderom et al. (2015). 1611 employees of a large retail electronics chain in South Korea and 253 store managers took part in this experiment. The objective of the study was to evaluate the relationship between leader’s EI, TC, sales-directed employee behaviour (SDEB) and objective store performance. SDBE is defined as signifying task-oriented behaviours of work-unit employees focused on sales performance (Wilderom et al., 2015). The model used a three-path mediational model to measure the relationship between EI and TP. TC and SDEB were used as a mediator. EI was assessed by WLEIS test. For cohesiveness the Wilson, Hansen, Trakeshwar, Neufeld, Kochman and Sikkema test was used (Wilson et al., 2008). SDEB measures to what extent the workers have sales-oriented behaviour. Finally, sales results were used to measure TP.

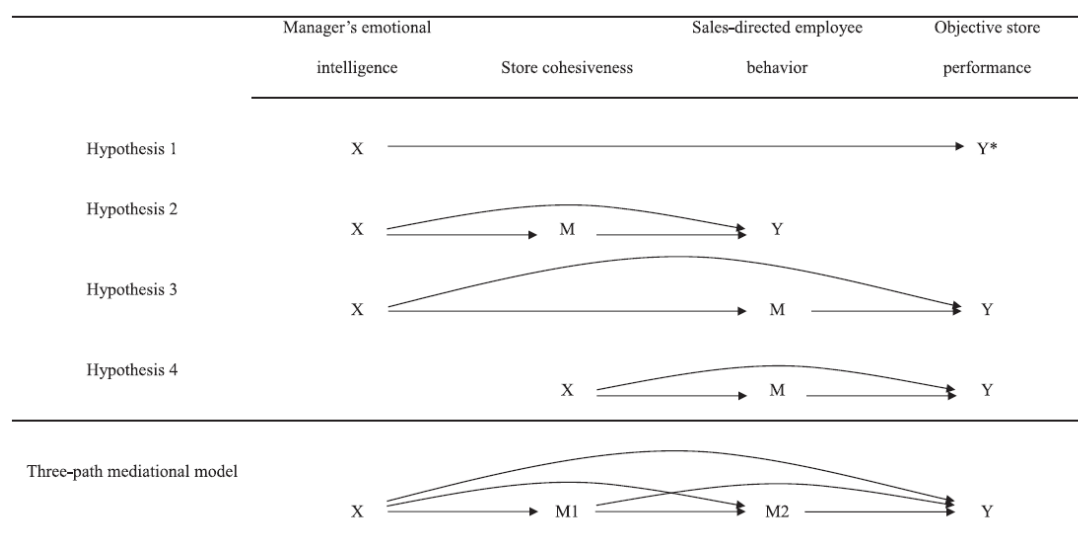


Figure 6: Scheme model Wilderom et al. (Wilderom et al., 2015)

The results showed that there is no direct relationship between leader’s EI and TP. Nonetheless, the mediation between manager EI and SDEB by TC was supported. EI is related to cohesion ($\beta = 0.36, p < 0.001$) and TC to SDEB ($\beta = 0.20, p < 0.01$). It was also supported the mediation effect of SDEB between EI ($\beta = 0.15, p < 0.05$) and TP ($\beta = 0.26, p < 0.001$). Finally, the mediation effect of SDEB between TC ($\beta = 0.23, p < 0.001$) and TP ($\beta = 0.26, p < 0.001$) was confirmed. Thus, the model supported that EI and TP is mediated firstly by TC and then by SDEB.

Along the same line, the three-path model was tested and supported. Furthermore, the positive relationship between TC, SDEB and TP was validated ($\beta = 0.25, p < .001$).

3.5. Synthesis of results

All the articles have different scopes, even though all of them link somehow the effect of EI and TC in TP. None of them have found a direct effect of EI in TP. However, all of them supported that there is an indirect effect through mediators and moderators between the two variables. Not only the group emotional intelligence has been proven to be effective to boost the TP, but also the leaders EI seems to be correlated with better achievement. WLEIS seems to be the most popular test to measure EI, at both group and individual levels.

In the same vein, there is not only a significant relationship between high values of EI and high values of TP mediated by TC. Lu and Fan (2017) have proven the moderator effect of EI between the psychological similarity and TC. SE (Black et al. 2019; Kim and Ko, 2021) and trust (Kim and Ko, 2021) also mediate the relationship between collective EI and TC. Furthermore, sales directed employee behaviour can also mediate the relationship between TC and TP (Wilderom et al., 2015).

Table 2 includes a summary of the results.

Table 2: Summary of results

Reference	Study design	Outcomes				
		Partial relationships				Global
		EI-TC	TC-TP	EI-Mediator	Mediator-TC	Other
Kim and Ko (2021)	Quasi-experimental	↑WLEIS (2004) → ↑MTCS	↑MTCS → ↑NP	↑WLEIS (2004) → ↑MATS	↑SESSB → ↑MTCS ↑MATS → ↑MTCS	↑WLEIS (2004) → ↑SESSB → ↑MTCS ↑WLEIS (2004) → ↑MATS → ↑MTCS
Zhang et al. (2020)	Observational	↑WLEIS (2002) → ↑PTCS	↑PTCS → ↑TTPI			↑WLEIS (2002) → ↑TTPI (β=-0.13)
Black et al. (2019)	Quasi-experimental	↑WLEIS (2004) → ↑MTCS	↑MTCS → ↑ROE	↑WLEIS (2004) → ↑SESSB	↑SESSB → ↑MTCS	↑WLEIS (2004) → ↑SESSB → ↑MTCS ↑DLPFS → ↑WLEIS (2002) → ↑GIS → ↑HTPS (WLEIS moderator)
Lu and Fan (2017)	Observational	↑WLEIS (2002) → ↑GIS	↑GIS → ↑HTPS			↑DLPFS → ↑WLEIS (2002) → ↑GIS (WLEIS moderator) ↑DLPFS → ↑GIS → ↑HTPS ↑WLEIS (2002) → ↑PTC → ↑TTPI
Wilderom et al. (2015)	Observational	↑WLEIS (2002) modified → ↑WTCS (β=0.36, p<0.001)		↑WLEIS (2002) modified → ↑SDEBDS modified (β=0.15, p<0.05)	↑WTCS → ↑SDEBDS modified (β=0.23, p<0.001)	WLEIS (2002) modified → SR (r=0.7, p>0.5) NO SIGNIFICANT RELATIONSHIP WLEIS (2002) modified → ↑WTCS → WLEIS (2002) modified → WTCS → ↑SDEBDS modified → ↑SR (β=0.25, p<0.001)

↑SDEBDS modified
($\beta=0.20$, $p<0.01$)

WLEIS (2002) modified →
↑SDEBDS modified →
↑SR ($\beta=0.26$, $p<0.001$)

WTCS →
↑SDEBDS modified →
↑SR ($\beta=0.26$, $p<0.001$)

Key

DLPFS=Deep-Level Psychological Fitness Scale (psychological similarity)
GIS=Group Integration Scale
HTPS= Hoegl et al. Team Performance Scale
MATS=McAllister Trust Scale
MOAQ=Michigan Organizational Assessment Questionnaire (Job Satisfaction)
MTCS=Michalisin Team Cohesion Scale
NP=Net Profit
PTCS=Price Team Cohesion Scale
ROE=Return On Equity
SDEBDS=Sales-Directed Employee Behaviour Dubinsky Scale
SESSB=Self-Efficacy Scale Schwarzer and Born
SR=Sales Result
TTPI=Tjovold Team Performance Items
WLEIS= Wong and Law Emotional Intelligence Scale
WTCS=Wilson et al Team Cohesion Scale

4. Discussion

The main aim of this study was to study the effect of EI on TC to enhance TP. Different studies have measured different types of EI, for example, TEI (Black et al., 2019; Kim and Ko, 2021), leader EI (Wilderom et al., 2015; Lu and Fan, 2017) or team members EI (Zhang et al., 2017). For this purpose, a systematic review was carried out. In addition, other mediators were analysed in the studies, such as, SE (Black et al., 2019; Kim and Ko, 2021), trust (Kim and Ko, 2021) or SDEB (Wilderom et al., 2021). Despite including other variables in the selected papers, they were not analysed in our study because it was beyond our goals. For example, PW (Kim and Ko, 2021); Accountability and Quality of work (Black et al., 2019); perceived PS and JS (Lu and Fan, 2017); and PGF (Zhang et al., 2020).

Several databases were searched but not many papers have been written regarding this topic. Nonetheless, we could find 5 articles that fit into our goals. Most of the studies used the WLEIS test to measure EI but different tests and variables to measure TC, TP and the other mediators. Regarding TP, ROE (Black et al., 2019), NP (Kim and Ko, 2021) and scales developed by other authors (Lu and Fan, 2017; Zhang et al., 2020; Wilderom et al., 2015) were used to measure it.

Even though Curseu et al. (2015) found a positive relationship between EI and PW, Kim and Ko (2021) could not find it.

Almost all the studies linked the EI with TP using at least TC as a mediator. However, Kim and Ko (2021) also evaluated the effect of PW in EI even though they did not hypothesize it and Lu and Fan used EI as a moderator, which means that their final goal was not to measure the link of EI with TP but the moderator effect of EI on the relationship between perceived PS and TC.

4.1. Strengths and limitations of included studies

The main drawback of the included studies is that none of them is a Randomized Control Trial (RTC) study. Furthermore, the studies have been made only in two geographic areas: South-east Asia and the United States of America. Plus, all the participants volunteered to be part of the experiment, so, they knew they were observed, so, it may well affect the way they answer.

However, the studies have only been done in different fields. For instance, business students (Black et al., 2019; Kim and Ko, 2021), employees from different industries (Lu and Fan, 2017; Zhang et al., 2020) or retail electronic stores (Wilderom et al., 2015). So, even though all the studies have been made in different years, fields and countries, the results of all of them show a positive relationship between EI, TC and TP.

4.2. Strengths and limitations of this review

The articles selected for the study come from important databases and most of them have been published in peer-reviewed magazines. However, we did not take into account all the literature, since only English written articles were included. Moreover, we only picked studies that related the three mentioned features. For further research, studies that only link the variables in pairs, might be included.

One advantage of this review is that it includes studies made by different researchers and only two were done at the same institution, but for different samples and authors (Black et al., 2019; Kim and Ko, 2021).

We also considered different types of EI (Leader's EI, collective EI and team members EI) and pointed out which articles were considering one or the other. The outcome measures that are beyond our goals were also summarized in Table 1 to facilitate further research.

5. Conclusions

The results show a significant relationship between CEI and TC and TP. In the same vein, high values of leader EI (Wilderom et al., 2021; Zhang et al., 2020) or team members EI (Lu and Fan, 2017) are linked to high values of TC and TP. The included studies linked the effect of EI on TP through TC and other mediators, for instance, SE (Black et al., 2019; Kim and Ko, 2021), trust (Kim and Ko, 2021) or SDEB (Wilderom et al., 2021).

However, since we could not find any study with a control group, we concluded that the referenced studies have a high bias. Which means that more studies, with better quality methodology are needed to generalize the results. Moreover, with the current results it is not recommended to do a meta-analysis.

EI being a new concept has some pros and cons. On the one hand, all the included articles were published over the last decade. On the other hand, not many articles have been found. Unfortunately, only south-east Asian and American articles were found.

5.1. Further studies

Since a positive influence of EI on TP has been observed, it must be interesting to study in further research which types of inputs are conducive to high levels of EI in teams and managers. Some might be improved by training like Goleman suggested with EI (Goleman, 1995). Other factors may be modified by the human resources department and promoted by the firm ethics, such as, the female representation (Curseu et al., 2015), as well as age and cultural diversity.

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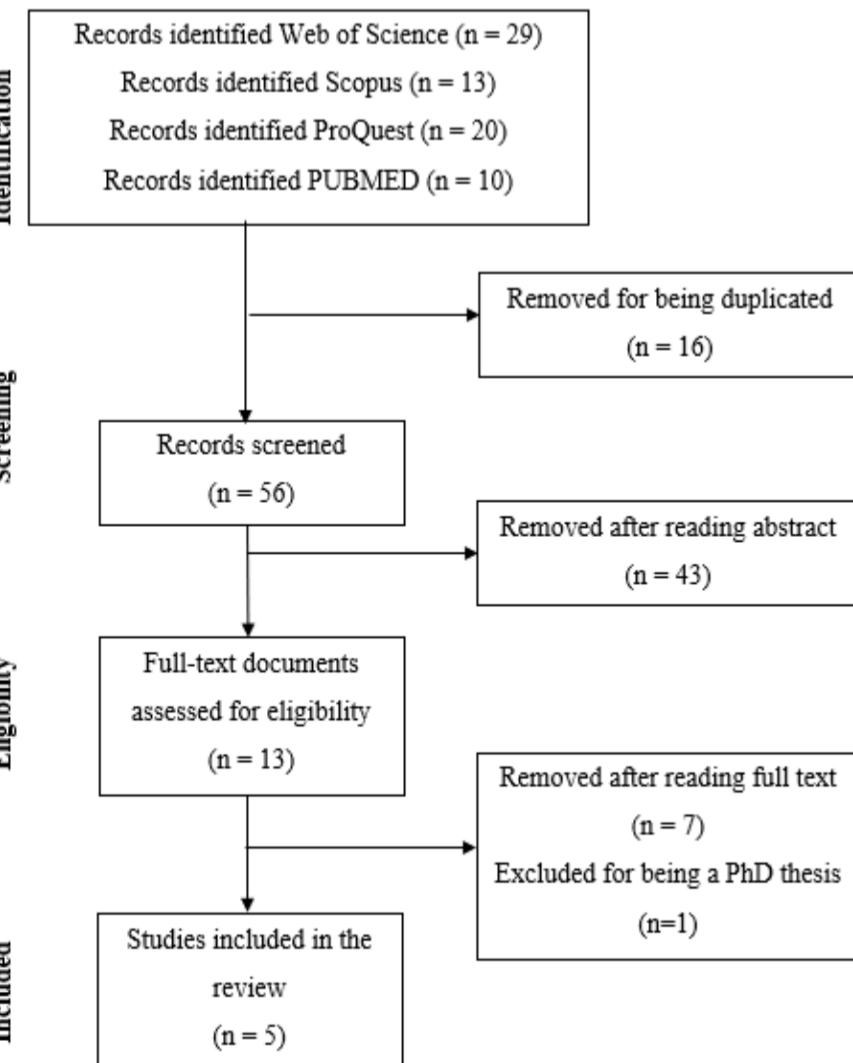
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Introduction and goals

In business contexts, there is a growing interest in intelligences other than the logical mathematical one, such as Emotional Intelligence (EI), Team Cohesion (TC), and Team Performance (TP) constructs.

The aim of this research is to study the relationships between the EI, TC and TP, through a systematic review of the relevant literature. We conducted this study to see if there is a significant improvement on TC in emotional intelligent groups and if it is conducive to better TP.

Methodology



Results

Reference	Study design	Participants (target, sample, size: N)	Comparison	Intervention	Objectives	Outcome measures	Outcome results
Kim and Ko (2021)	Quasi-experimental	347 senior Business students 81 teams (4-5 members per team) USA 47% men and 53% women 25.2 average age 46% White, 20.7% Hispanic, 16.7% African American, 11.1% Asian 4.8% other	-	Capsim (Business simulation)	Test mediator effect of SE and Trust between EI and TC. Examine the relationship between TC and TP.	WLEIS (2004) SESSB MATS MTCS NP PW	<ul style="list-style-type: none"> ↑WLEIS (2004) → ↑MTCS (β = 0.22, p < 0.01) ↑WLEIS (2004) → ↑SESSB (β = 0.45, p < 0.01) ↑SESSB → ↑MTCS (β = 0.39, p < 0.01) ↑WLEIS (2004) → ↑MATS (β = 0.17, p < 0.05) ↑MATS → ↑MTCS (β = 0.11, p < 0.05) ↑MTCS → ↑NP (β = 0.27, p < 0.01) ↑WLEIS (2004) → ↑SESSB → ↑MTCS ↑WLEIS (2004) → ↑MATS → ↑MTCS ↑WLEIS (2004) → ↑MATS → ↑MTCS PW → WLEIS (2004) NO SIGNIFICANT RELATIONSHIP
Zhang et al. (2020)	Observational	64 teams (average group size 3.31.) from different industries. Taiwan 64 group leaders (67.9% male) 197 subordinates (52.4% male) Average group tenure 3 years.	-	-	Investigate dynamic mediating mechanisms that link Leader EI with TP	WLEIS (2002) TTPI PTCS PGFCDRS	<ul style="list-style-type: none"> ↑WLEIS (2002) → ↑PTCS (β=0.56, p<0.001) ↑PTCS → ↑TTPI (β=0.25, p<0.01) ↑WLEIS (2002) → ↑TTPI (β=-0.13) ↑WLEIS (2002) → ↑PTC → ↑TTPI (β = 0.14, p = 0.049) ↑WLEIS (2002) → ↑PTC → ↑PGFCDRS (β = 0.14, p = 0.049) ↑WLEIS (2002) → ↑PGFCDRS (β = 0.7, p = 0.000)
Black et al. (2019)	Quasi-experimental	146 Senior Business major students (35 teams) USA 50% male and 50% female 25.2 average age 46.8% White 20.7% Hispanic 16.7% African American 11.1% Asian 4.8% others	-	Capsim (Business simulation)	Examine empirically the effect of emotional intelligence on the team cohesion, self-efficacy and team performance.	WLEIS (2004) MTCS SESSB ROE PESTPA PESTPQWP	<ul style="list-style-type: none"> ↑WLEIS (2004) → ↑MTCS (β=0.45, p<0.05) ↑MTCS → ↑ROE (β=0.36, p<0.05) ↑WLEIS (2004) → ↑SESSB → ↑MTCS (β=0.21) ↑SESSB → ↑MTCS (β=0.54) ↑WLEIS (2004) → ↑SESSB (β=0.52) ↑MTCS → ↑PESTPA (β=0.31, p<0.05) ↑MTCS → ↑PESTPQWP (β=0.37, p<0.05)
Lu and Fan (2017)	Observational	338 employees from different industries Taiwan 51.2% female 33.25 average age 56.8 % bachelor's degree and 39.6% master's degree Average tenure in organization 4.78 years. Average tenure in team 4.89 years. Average team size 7.89 people	-	-	Explore critical psychological mechanisms transforming team inputs into successful work outcomes at the individual level.	WLEIS (2002) GIS HTPS DLPFS JSMOAOQ	<ul style="list-style-type: none"> ↑DLPFS → ↑WLEIS (2002) → ↑GIS (WLEIS moderator) ↑DLPFS → ↑GIS → ↑HTPS ↑GIS → ↑HTPS (β = 0.57, p < 0.01) ↑WLEIS (2002) → ↑GIS ↑DLPFS → ↑GIS → ↑JSMOAOQ (β = 0.35 p < 0.01) ↑GIS → ↑JSMOAOQ (β = 0.35 p < 0.01) ↑DLPFS → ↑WLEIS (2002) → ↑JSMOAOQ (WLEIS moderator) ↑DLPFS → ↑WLEIS (2002) → ↑HTPS (WLEIS moderator)
Wilderom et al. (2015)	Observational	253 managers and 1611 employees from 261 retail stores from an electronics chain (from 4 to 16 employees per store) South Korea Managers: 99% men 42 years old average 98% had worked for the firm for more than 7 years 53% had worked in their current stores between one and three years 45% had at least a Bachelor's degree. Employees: 54% men 28 years old average 54% high school diploma 45% completed college 50% had worked for the firm for more than three years and two years for their current store.	-	-	Measure empirically whether the EI of managers is associated with TP.	WLEIS (2002) modified WTCS SR SDEBDS modified	<ul style="list-style-type: none"> WLEIS (2002) modified → SR (r=0.7, p>0.5) NO SIGNIFICANT RELATIONSHIP WLEIS (2002) modified → ↑WTCS → ↑SDEBDS modified (β=0.20, p<0.01) ↑WLEIS (2002) modified → ↑WTCS (β=0.36, p<0.001) WLEIS (2002) modified → ↑SDEBDS modified → ↑SR (β=0.26, p<0.001) ↑WLEIS (2002) modified → ↑SDEBDS modified (β=0.15, p<0.05) ↑WTCS → ↑SDEBDS modified (β=0.23, p<0.001) WTCS → ↑SDEBDS modified → ↑SR (β=0.26, p<0.001) WLEIS(2002) modified → WTCS → ↑SDEBDS modified → ↑SR (β=0.25, p<0.001)

Reference	Study design	Outcomes				
		Partial relationships				Global
		EI-TC	TC-TP	EI-Mediator	Mediator-TC	Other
Kim and Ko (2021)	Quasi-experimental	↑WLEIS (2004) → ↑MTCS	↑MTCS → ↑NP	↑WLEIS (2004) → ↑SESSB ↑WLEIS (2004) → ↑MATS	↑SESSB → ↑MTCS ↑MATS → ↑MTCS	↑WLEIS (2004) → ↑SESSB → ↑MTCS ↑WLEIS (2004) → ↑MATS → ↑MTCS
Zhang et al. (2020)	Observational	↑WLEIS (2002) → ↑PTCS	↑PTCS → ↑TTPI			↑WLEIS (2002) → ↑TTPI (β=-0.13)
Black et al. (2019)	Quasi-experimental	↑WLEIS (2004) → ↑MTCS	↑MTCS → ↑ROE	↑WLEIS (2004) → ↑SESSB	↑SESSB → ↑MTCS	↑DLPFS → ↑WLEIS (2002) → ↑GIS → ↑HTPS (WLEIS moderator)
Lu and Fan (2017)	Observational	↑WLEIS (2002) → ↑GIS	↑GIS → ↑HTPS			↑DLPFS → ↑WLEIS (2002) → ↑GIS (WLEIS moderator) ↑DLPFS → ↑GIS → ↑HTPS
Wilderom et al. (2015)	Observational	↑WLEIS (2002) modified → ↑WTCS (β=0.36, p<0.001)		↑WLEIS (2002) modified → ↑SDEBDS modified (β=0.15, p<0.05)	↑WTCS → ↑SDEBDS modified (β=0.23, p<0.001)	WLEIS (2002) modified → SR (r=0.7, p>0.5) NO SIGNIFICANT RELATIONSHIP WLEIS (2002) modified → ↑WTCS → ↑SDEBDS modified (β=0.20, p<0.01) WLEIS (2002) modified → ↑SDEBDS modified → ↑SR (β=0.26, p<0.001) WTCS → ↑SDEBDS modified → ↑SR (β=0.26, p<0.001) WLEIS(2002) modified → WTCS → ↑SDEBDS modified → ↑SR (β=0.25, p<0.001)

Conclusions

All the studies have found significant relationships between the three concepts. Nevertheless, different mediators have been used in the research. Higher quality studies must be done to corroborate the effect of EI and TC on TP.

Highlights

- Globalisation requires new management techniques.
- EI might have a good impact on TC and TP.
- Over the last 20 years there is a growing interest in EI.
- Different types of EI constructs can be linked to better achievements.
- Further and more reliable research is needed in this field.