



## Team Potency and Cooperative Learning in the University Setting

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### ABSTRACT

There were two goals to this investigation, on the one hand, to construct the “Learning Team Potency Questionnaire” in the university setting and to analyze its psychometric characteristics. The second goal was to show how teamwork with cooperative learning techniques (CLT) influences team potency. In this work, participants were 375 students aged between 18 and 44 years, randomly selected from a total of 1680 students of the Faculty of Teacher Training of Cáceres (Spain). The Learning Team Potency Questionnaire has very acceptable psychometric characteristics, good internal consistency and temporal reliability. Analysis using structural equations showed that the latent variables in the two factors found are well defined and, therefore, their assessment was adequate, reaffirming the good psychometric characteristics of the questionnaire. Regarding the second goal, we verified that teamwork with CLT influences team potency, that is, confidence in the team increases when students work as a team, using CLT.

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### Potencia de equipo y aprendizaje cooperativo en el ámbito universitario

#### RESUMEN

En esta investigación se plantean dos objetivos, por un lado construir un “Cuestionario de Potencia de Equipos de Aprendizaje” y analizar sus características psicométricas. En un segundo objetivo nos hemos propuesto demostrar cómo el trabajo en equipo con técnicas de aprendizaje cooperativo (TAC) influye en la potencia de equipo. En este trabajo participaron 375 estudiantes de edades comprendidas entre los 18 y 44 años, seleccionados al azar de un total de 1680 estudiantes de la Facultad de Formación del Profesorado de Cáceres (España). El Cuestionario de Potencia de Equipos de Aprendizaje posee unas características psicométricas muy aceptables, buena consistencia interna y fiabilidad temporal. El análisis mediante ecuaciones estructurales mostró que las variables latentes en los dos factores están bien definidas y, por tanto, la forma en que se han evaluado es adecuada, reafirmando las buenas características psicométricas de la escala. En cuanto al segundo objetivo, se verificó que el trabajo en equipo con TAC influye en la potencia de equipo, es decir, la confianza en el equipo aumenta cuando los estudiantes trabajan en equipo, utilizando TAC.

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### Introduction

The first investigations on applications of cooperative learning (CL) appeared in the 1960s (Slavin, 1991). Since then, CL has been the object of numerous studies. Most of the investigations have focused on ana-

lyzing the consequences and results of the application of cooperative learning techniques (CLT) on academic, social, and affective variables (Johnson, Johnson, & Maruyama, 1983; Johnson, Maryuama, Johnson, Nelson, & Skon, 1981). In the opinion of Elices, Del Caño, and Verdugo (2002), it is a positive methodology for students. Along these same research lines Johnson, Skon, and Johnson (1980) and Skon, Johnson and Johnson (1981) compared three types of interaction and organization: cooperative, competitive, and individualistic, revealing better academic social and social performance in cooperative situations.

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Within this majority group of investigations, some studies in Spain have analyzed the results and positive consequences of the use of CL (Del Caño & Mazaira, 2002; Díaz-Aguado & Andrés, 1999; León, Felipe, Gozalo, Gómez, & Latas, 2009; León, Gozalo, & Polo, 2012; Lobato, 1997; Ojea, López Cid, & Fernández, 2000; Sales, 1998).

Few investigations have focused mainly on solving issues related to the efficacy of CL and the mediating mechanisms involved. The goal of these investigations revolves around two axes. The first one focuses on the nature and quality of the interactive process (Bennet & Dunne, 1991).

The second axis refers to prior factors that condition the efficacy of CL (León, 2006; León, Gozalo, & Vicente, 2004; Monereo, Castelló, & Martínez-Fernández, 2013; O'Donnell et al., 1990; Rewey, Dansereau, Dees, Skaggs, & Pitre, 1992).

In Spain, there are very few investigations related to factors that mediate the efficacy of CL. Although in the university setting, we underline the work of León et al. (2004), who analyzes how the character of the participants—introvert, extrovert, independent, gregarious, shy—affects the success and failure of CL. The influence of training in social skills and group dynamics on performance and on the interactive processes in CL situations has been corroborated (León, 2006). The more the resources of social interaction are consolidated in the group; the better is performance and the efficacy of cooperative systems.

Within the sphere of organizations, the Input-Processes-Output (IPO) model (Gil, Alcover, & Peiró, 2005; Goodwin, Burke, Wildman, & Salas, 2009; Kozlowski & Ilgen, 2006) has mainly been used for the analysis of the efficacy of work teams, and variables such as team composition, homogeneity-heterogeneity, the competences contributed by team members, task design and interdependence, the team's mental models, transactional memory, group learning, group climate, team potency, cohesion, conflicts, emotional processes, communication, and coordination have been studied.

However, the IPO model is insufficient; in addition to the processes, there are many mediators involved which transmit the influence to the results. The IPO implies a linear trajectory of one single cycle of entries through results, eliminating the feedback cycle in the sequence. As an alternative model, we use the term IMOI (Input-Mediator-Output-Input). Substituting "M" for "P" reflects the broader range of variables with explanatory power for variability in team performance and its viability (Ilgen, Hollenbeck, Johnson, & Jundt, 2005).

Regardless of the theoretical model, there are three good indicators that determine the efficacy of a workteam: the level of group development—that is, group maturity—, the members' identification with the team, and team potency (Navarro, Quijano, Berger, & Meneses, 2011).

Many researches have focused on the analysis of how team composition, processes and the organizational setting determine team efficacy, but not until the 1990s did researchers consider the importance of the collective beliefs in the team's capacity. Two types of team beliefs were the center of the research: team potency and team efficacy (Collins & Parker, 2010). Both constructs refer to the beliefs of the team members about the team's capacity to be effective. According to Jung and Sosik (2003), both terms have been used indistinctively. The concept of team potency was originally defined by Guzzo, Yost, Campbell, and Shea (1993) in reference to a group's collective beliefs in its effectiveness, and it is an essential construct related to group motivation. The concept of collective self-efficacy is related to team potency (Bandura, 1997). Self-efficacy refers to a team member's individual beliefs and it underlines individual actions required to perform a specific task. The meta-analyses of Stajkovic, Lee, and Nyberg (2009) indicated that group potency was related to group performance (.29) and more so to collective efficacy (.65).

According to Collins and Parker (2010), there is solid evidence of the importance of team potency. In a meta-analysis of 67 studies, positive and moderate relations were shown ( $r = .37$ ) between team

potency and group performance (Gully, Incalcaterra, Joshi, & Beaubien, 2002). On the one hand, team potency is the most relevant variable to predict performance and group efficacy when compared with other variables such as group composition, interdependence, work design, and organizational setting (Campion, Papper, & Medsker, 1996). Other investigations relate team potency to leadership and its influence on group performance (Lester, Meglino, & Korsgaard, 2002; Sivasubramaniam, Murry, Avolio, & Jung, 2002). In Spain, studies of team potency are practically nonexistent, although we note the investigations of Mena, Barrasa and Gil (2012), who analyze the influence of team potency and its variation on work team efficacy in health settings.

According to Gil et al. (2005), the benefits of team potency on work teams are independent of the context in which they take place; hence, our interest in this construct within the context of CL in the university setting. Currently, when the process of adaptation to the European Space of Higher Education has culminated in all the Spanish universities, teaching processes and the teacher's work in presential teaching are no longer as interesting as the learning processes by which students achieve the proposed goals in each subject (Palacios, 2004).

In this new learning-focused approach, the use of methodologies, like CL, has established itself as a practical alternative to traditional teaching, and has proven its effectiveness in hundreds of studies throughout the world (Slavin, 2011). It is important that students learn to interact effectively in situations of cooperation, strengthening and facilitating independent learning (Johnson & Johnson, 1994).

The CL is an efficacious methodology to develop critical sense and tolerance, when the task is complex or the learning objectives are very important, and when what is intended is the social development of the students (Macpherson, 2009). The CL transcends the strictly academic aspect and facilitating the practice of habits of cooperation, solidarity and teamwork (the transversal competence of our titles). The latter are key aspects in most business organizational schemes. According to Colás (1993), between 70 and 80% of jobs require a complex coordination of ideas and efforts, a capacity that can only be experienced and learnt through situations of CL.

Within this new teamwork context in situations of CL in the university setting, we are interested in the students' beliefs in the capacity of their work team. We think that team potency is one of the most relevant motivational variables related to group efficacy, which improves team members' attitudes and the perception to successfully perform a task and their capacity to solve problems that may arise while performing the teamwork. There were two goals to this investigation, on the one hand, to construct a "Learning Team Potency Questionnaire" in the university setting and to analyze its psychometric characteristics. It is important to design instruments to assess and delimit this construct within the university setting in a situation of CL. The second goal was to show how teamwork using CLT influences team potency. We believe that confidence in the team and their ability to successfully complete the tasks increases when the students learn together, help each other mutually, and solve team problems satisfactorily.

## Method

### Participants

In this research, 375 students, aged between 18 and 44 years, participated. Of them, 80% were less than 22 years old, and the mean was 21.3 ( $SD = 4.6$ ) years. Of them, 66% were female. The participants were selected randomly using a cluster sampling where 6 classes were randomly selected from a total of 16 (1680 licentiate students) of the Faculty of Teacher Training of Cáceres (Spain), Primary Education Teachers, and Social Education. With these 375 students, 125 teams of 3 members were formed. The members of each team

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