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SUMARIO • SUMMARY • RESUMO

- Editorial 118
- El desarrollo de la competencia pragmática en estudiantes de español nivel principiante: un estudio sobre las peticiones 119
  Developing pragmatic competence in first year Spanish students: a study on requests
  Jeremy W. Bachelor, Heartland Community College Universidad.

- El debate como estrategia metodológica para el desarrollo de las competencias genéricas del proyecto Tuning para América Latina 141
  Debate as a methodological strategy for the development of generic competences of the Tuning project for Latin America
  Edison Francisco Higuera Aguirre, Dennis Schutijser de Groot, Virginia Isabel Salinas Cárdenas, Pontificia Universidad Católica del Ecuador

- Estudio comparativo entre metodología de aula invertida y metodología tradicional en clases de español, inglés y matemáticas 159
  Comparative study between the flipped classroom methodology and the traditional methodology in Spanish, English and Mathematics classes.
  Carolina Maria Schmeisser Arriaga, Jose A. Medina-Talavera, Universidad Internacional Iberoamericana

- Inteligencia emocional rasgo y su influencia sobre el optimismo disposicional en profesionales de centros de atención a personas con discapacidad intelectual..... 177
  Emotional intelligence as a feature and its influence on the dispositional optimism of professionals who work in care centers specializing on intellectually disabled people
  Óscar Gavín Chocano, Universidad de Jaén

- Capacidades dinámicas: un análisis empírico de su naturaleza 192
  Dynamic Capabilities: An Empirical Analysis of its Nature
  Javier Alfonso Mendoza Betin

- Estudio sobre la percepción de los estudiantes de Bachillerato en Enfermería al utilizar la evaluación clínica objetiva estructurada (ECOE) en simulación clínica en cursos de enfermería en Puerto Rico 211
  Study of undergraduate Nursing students' perception on the objective structured clinical evaluation (OSCE) when used in clinical simulations in Nursing courses in Puerto Rico
  Reina Del Carmen Rivera Vélez, Universidad Internacional Iberoamericana

Editorial

A set of articles on diverse topics are brought together in this new MLSER issue, with some being of a similar nature as is the case with the articles on competencies. The first of these deals with pragmatic competencies in Entry-level Spanish students, a key piece for them to communicate in an effective manner in the foreign language. To this end, pragmatic lessons are sought to be incorporated with respect to the request strategies in a first-year course of Spanish as a foreign language in the US. It is clear that the experimental group developed a greater increase in pragmatics competence (with regard to requests), though this was not statistically significant.

The following centers its attention on debate as a strategic methodology for the development of generic competencies in the Turing Project for Latin America. It uses Philosophy students from the Pontifical Catholic University of Ecuador as a reference, based on three generic competencies: capacity for oral and written communication; skills in searching, processing and analyzing information coming from different sources; and the capacity to apply knowledge into practice. The provisional results of the study point out to the fact that debate may favor the development of the competencies analyzed.

On a completely different plane, we find the study between the inverted classroom methodology and the traditional classroom methodology in Spanish, English and Mathematics. In this case, it centers on verifying the pChatear,whatapp, facebook..erformance impact on the use of the inverted classroom methodology compared with the use of the traditional methodology in ninth and tenth grade students in the courses of Spanish, English and Mathematics. No statistically significant difference was found in the end between both groups.

Another of the articles included in this current issue is that of emotional intelligence as a feature that may influence the dispositional optimism of professionals in centers of care for intellectually disabled people. Its purpose is to analyze the relationship between these concepts in professionals that work in centers of care for intellectually disabled people in the province of Jaen (Spain). Its main conclusion is the existence of significant relationships between some of the dimensions of the considered instruments and those of Emotional Intelligence and the varied socio-demographic genre, as well as a positive association between Emotional Intelligence (intrapersonal) and dispositional optimism.

The flexibility of the MLSER research content is seen in the study on dynamic capacities and financial profit based on the analysis of basic sanitation businesses in Cartagena (Colombia). With an exploratory and transversal strategic methodology, it arrives to the conclusion that the dynamic capacity idiosyncrasies are eclectic and integrated together with the heightened resilience of organizations' economic performance which uses the contrast of hypotheses through structural equations.

The final article is found within a different dimension, which addresses an exploration from the perception of students from the Nursing Degree on the use of Objective Structured Clinical Evaluation in nursing courses from a university in Puerto Rico. The effectiveness of the OSCE in measuring the achievements of the professional competencies in a nursing course, with different areas of improvement being identified when using the same.

Antonio Pantoja Vallejo
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DEVELOPING PRAGMATIC COMPETENCE IN FIRST YEAR SPANISH STUDENTS: A STUDY ON REQUESTS

Jeremy W. Bachelor
Heartland Community College, United States
jeremy.bachelor@heartland.edu · https://orcid.org/0000-0002-6447-5385

DEVELOPING PRAGMATIC COMPETENCE IN FIRST YEAR SPANISH STUDENTS: A STUDY ON REQUESTS

Abstract. The study of pragmatics attempts to determine what is considered socially appropriate given the context in question. Many studies now suggest that pragmatic errors are perceived as more severe than other types of errors, such as grammatical or vocabulary errors. Additionally, pragmatic competence is key in students communicating effectively in the foreign language. As such, it is more important than ever that foreign language teachers include pragmatic lessons in their classes, especially considering that communicative language textbooks lack pragmatic descriptions. To this end, the present study sought to incorporate pragmatic lessons regarding requested strategies in a first year, second semester L2 Spanish class in the United States. Control and experimental groups were established, and the three requested strategy lessons were only included in the experimental group. Prior to the first lesson, students took two pre-tests (written and an oral), then after the lessons, the tests were taken again (post-tests). It was found that the experimental group experienced greater increases in pragmatic competence (regarding requests); however, the increase was not found to be of statistical significance. The professor of the course was satisfied with the increase and plans to continue implementing pragmatic lessons in future semesters.

Keywords: Pragmatic competence, requests, Spanish as a foreign language, pragmatic lessons

EL DESARROLLO DE LA COMPETENCIA PRAGMÁTICA EN ESTUDIANTES DE ESPAÑOL NIVEL PRINCIPIANTE: UN ESTUDIO SOBRE LAS PETICIONES

Resumen. El estudio de la pragmática intenta determinar qué se considera socialmente apropiado dado un determinado contexto. Muchos estudios sugieren que los errores pragmáticos se perciben como errores más graves que los errores gramaticales o los de vocabulario. Además, la competencia pragmática es clave para que los estudiantes se comuniquen de manera efectiva en el idioma extranjero. Como tal, es más importante que nunca que los profesores de lenguas extranjeras incluyan lecciones pragmáticas en

sus clases, especialmente si consideramos que los libros de texto de lenguaje comunicativo carecen de descripciones pragmáticas. Con este fin, el presente estudio buscó incorporar lecciones pragmáticas con respecto a las estrategias de peticiones en un curso de primer año de español como lengua extranjera en los Estados Unidos. Se establecieron grupos de control y experimentales, y las tres lecciones de estrategias de peticiones solo fueron implementadas en el grupo experimental. Antes de la primera lección pragmática, los estudiantes hicieron dos exámenes previos (uno escrito y uno oral) y, después de las lecciones, se hicieron los exámenes de nuevo (exámenes posteriores). Se encontró que el grupo experimental desarrolló un mayor aumento en la competencia pragmática (con respecto a las peticiones); sin embargo, el aumento no fue estadísticamente significativo. El profesor del curso se mostró satisfecho con el aumento y planea continuar implementando lecciones pragmáticas en futuros cuatrimestres.

Palabras clave: Competencia pragmática, peticiones, español como lengua extranjera, lecciones pragmáticas

Introduction

Foreign language teachers are beginning to understand the importance of including sociolinguistic content in their classes for beginning students, such as ways of speech acts and pragmatics (Vellenga, 2011). This can largely be attributed to the acceptance by many educators that a grammar-led classroom is not enough to achieve a comprehensive learning. Therefore, an approach that promotes effective communication among students is vital in language acquisition (Bachelor, 2017). It is crucial that students understand the nuances of the language that they are studying, as a number of studies have shown that pragmatic errors are more serious than grammatical errors in order to achieve effective communication (Barros García & Bachelor, 2018; Wolfe, Shanmugaraj & Sipe, 2016). While this has been acknowledged by many teachers, many are simply not trained in how to incorporate these components or they lack evidence of the effectiveness of their teaching strategies (Vellenga, 2011).

For this reason, this study focuses on increasing the strategies of requests among first-year Spanish students. Requests were chosen as they are among the most frequently used Spanish speech acts (Langer, 2011). During the 2017 spring semester at a university in the USA, experimental and control groups were established in several sessions on the following subject: Spanish II for foreigners. Pragmatic lessons about Spanish requests were introduced in the experimental group to determine which of the two groups had a greater pragmatic growth. Pre and post tests were used with in-between interventions to reach such conclusion.

Pragmatic competence, speech acts, requests and their teaching

This section examines the pragmatic ability from the perspective of non-native speakers. As a field of interdisciplinary research, pragmatics is a linguistic discipline that has been studied for years. However, it is necessary to examine some of these definitions in depth, as well as studies on some pragmatic subfields, in order to arrive at a more holistic understanding of this discipline.

Thomas (1995) explains that pragmatics considers the negotiation of meaning between speaker and listener, the context of the utterance and the potential meaning of the utterance. One definition of pragmatics that has historically been the most quoted is that of Mey (1993), who defines it as "the societally necessary and consciously interactive dimension of the study of language" (p. 315). Crystal (1985, p. 301) offers a compatible vision with that of Mey (1993) when he explains that pragmatics is “the study of language from the user’s point of view, especially of the choices they make, the constraints they encounter in using language in social interaction and the effects that their use of language has on other participants in the act of communication.”

The field of pragmatics has undergone many transformations throughout history. According to Joseph (2012), pragmatics emerged by the expansion of the philosophical ideas of key thinkers such as Ferdinand de Saussure (1857-1913). However, as the field developed, other leading figures changed its course. For example, in 1905, Bertrand Russell (1919) presented a key study in the formalist approach to pragmatics, an approach that uses logical ideas to suggest that language can only have a literal meaning. As a result of this approach, inaccuracies, evasions and implicatures in interactions are perceived as language deficiencies. However, in 1962, Austin countered Russell's vision with a work fundamental to the non-formalist vision. The on-formalist approach accepts that language is undetermined (it may be vague or ambiguous), but it is interested in understanding how to communicate effectively despite using an imperfect language. In 1975, Paul Grice developed his theory of conversational implicatures and the cooperative principle. The author analyzed the connection between what is said and what is actually meant in a conversation. Grice developed four conversation maxims, which describe what the listener assumes about how the discourse will be. In 1969, John Searle researched the so-called speech acts, including its classification. Lastly, the greatest contribution to the field of pragmatics in modern history was that of Brown and Levinson (1978), who defined the politeness theory, based on the desire of every individual for their self-image to be valued, as well as not having anything imposed on them.

Continuing with the definitions created about pragmatics, other components mentioned by V.G. and Rajan (2012) forma part of them, such as the conversational structure or communication between two or more interlocutors (Brown, 2013); conversational management, or how the participants in a conversation negotiate topics and handle conversational turns (Mizón and Oyanedel, 1999); discourse organization (Loureda Lamas, 2010); sociolinguistic aspects of language use, such as the manners of addressing; and conversational implicature, or indirect or implicit speech acts (Martin Peris et al., 2008).

Unfortunately, a review of some of the most popular contemporary textbooks for Spanish language learning, supposedly based on communicative approach, shows how little attention is placed on pragmatic principles (Barros García & Bachelor, 2018). This lack of information is particularly negative when the language is not learned in an immersion language environment and, therefore, the students depend on the information they receive in the classroom. Due to said reason, it is necessary for teachers nowadays to include pragmatic elements, such as speech acts, in their lessons.

According to the Center for Advanced Research on Language Acquisition (2013), a speech act is a statement or expression which plays a role in communication, such as apologies, requests or invitations. Speech acts include real life interactions and do not only require language knowledge, but also the appropriate use of said language in a certain culture.

Langer (2011) explains that speech acts can be divided in three parts: meaning, function and effect on the listener. Likewise, speech acts can be direct or indirect. For instance, “close the window” could be a direct request for someone to close the window, while “it’s cold, isn’t it?” could work as an indirect request. The relationship between speakers also affects what is said. For instance, social distance between interlocutors (which is determined by factors such as age, gender and socioeconomic level) results in different linguistic options (García, 2004). When a student makes a request to a teacher from whom they are more socially distanced from, a more formal language would most likely be used. However, the same student would speak less formally when requesting something to a colleague. The difference in interpersonal

relationship between speakers is also conveyed in the language and the way the speakers talk.

As mentioned, Brown and Levinson (1978) developed the politeness theory, which explains that speakers try to "save their self-image" when performing speech acts. Brown and Levinson define "self-image" as the speaker's public face, the facet that every adult shows to others. This self-image must receive attention in the interaction, and the politeness model details the available options for self-image care by the speaker, distinguishing between strategies for positive image care and strategies for negative image care. Positive image is defined by the authors as the desire of being appreciated and liked by others, while negative image refers to the desire of having freedom and not having anything imposed upon. A negative strategy shows deference to the listener and provides them a way of carrying out the desired speech act; for example, "Darling, give me a cigarette", whereas "Can you give me a cigarette?" is a negative strategy. You can imagine the difficulty in achieving the two objectives which are sometimes opposite: ensuring that the listener meets the speech act while also maintaining their image.

A threatening act towards the image is an act which may or may not deliberately place at risk other people's image needs (Brown and Levinson, 1978). Courtesy is defined as the use of communication strategies to create and keep social harmony (Culpeper, 2009). This can be achieved in several ways: being contextually appropriate, following social and cultural rules, and being socially positive when dealing with image needs. The other person has the option of using courtesy super strategies with threatening acts (Brown and Levinson, 1978) with the aim of maintaining their image. When interacting, the speaker may in particular find the following options: carry out the act without attenuations (*bald-on record*), use positive courtesy, use negative courtesy, use indirect or mitigated courtesy (*off-record*) or retention (*withholding*) (Brown and Levinson, 1978). Acting without mitigations consists of not trying to minimize the threat to the image. Positive courtesy involves expression of affection towards the other person, thus minimizing threats towards positive image. Negative courtesy consists of not impeding the other person's action, minimizing the threat to negative image in this way. Indirect or mitigated courtesy consists of avoiding the responsibility of a threatening act through the use of indirection. And, lastly, retention consists of refusing to carry out a threatening act (Brown and Levinson, 1978).

Courtesy super strategies are determined by contextual factors, such as power relations between the speaker and the listener, social distance between the speaker and the listener, and how big the threat of the threatening act is (Brown and Levinson, 1978). When deciding the strategy to use, the speaker analyzes the individual advantages of each strategy.

Regarding discourtesy, it is defined as the involvement in aggressive image activities, with the aim of causing social trouble (Adelward, 1988). This can be carried out in several ways, and it can be that the speaker intentionally attacks the listener's image or that the listener perceives an intentional or unintentional attack on their image, by the speaker. There are also discourtesy super strategies which might be used. These super strategies are the same as courtesy super strategies, unless they are carried out rudely (Adelward, 1988).

Austin (1962) adds other aspects to the courtesy theory. The author explains that, when a speaker formulates a sentence, they are carrying out three acts: a locutionary act, an illocutionary act and a perlocutionary act. According to this author, a locutionary act consists of formulating a sentence with some sense and reference which

is more or less equivalent to its literal meaning. An illocutionary act consists of carrying out an action when saying something (i.e., answering a question, giving information, warning, expressing a purpose). Finally, a perlocutionary act is what speakers achieve when saying something, such as convincing, persuading or dissuading someone.

In the field of language teaching, it is important to understand speech acts from the student's point of view with the aim of avoiding lack of communication, the use of issues and carrying out social-culturally unsuitable actions, the fact that the speaker is too formal or informal regarding the context, and the ultimate aim of avoiding uncomfortable situations for interlocutors (Langer, 2011).

Early pragmatic research focused on the study of intercultural and interlanguage pragmatics. In the process of acquiring a foreign language, there is a system known as *interlanguage* (Schulz, 2011) which is a type of linguistic system used by foreign language students to store newly acquired knowledge. During a certain stage of interlanguage, the student comes to recognize the nuances in the use of language, which are related to pragmatic competence; hence the name interlanguage pragmatics.

Selinker (1972) explains that interlanguage pragmatics refers to the learner's understanding and use of linguistic forms in different contexts other than the target language. The study of interlanguage pragmatics is based on pragmatics and the acquisition of foreign languages. According to Selinker (1972), what researchers are trying to understand is how the use of pragmatics by foreign language learners is different from the use of native speakers. This is important because failures that occur due to a lack of pragmatic and sociolinguistic knowledge can lead to a student being perceived as rude.

Interlanguage pragmatics also tries to understand how the pragmatics of the target language is acquired. For this aim, the learning stages of pragmatics in different students are investigated in order to check if these stages are common among all students and if they occur in a specific order. Research on interlanguage pragmatics has important implications for the foreign language classroom because it supports direct and explicit instruction of pragmatic knowledge in language teaching.

Much of the research on interlanguage pragmatics focuses on studying the student's ability to produce different speech acts. Among the most commonly investigated speech acts are: requests, apologies, invitations, complaints, and rejections (Barron, 2003; Cohen and Shively, 2007; Felix-Brasdefer, 2007; Matsumura, 2001). Blum-Kulka, House and Kasper (1989) were the first authors to analyze intercultural differences in the realization and conception of speech acts. These authors focused on apologies and requests, addressing three different factors: the relative power of the interlocutors, the degree of social distance, and the degree of imposition.

Some of the most common forms of data collection for interlanguage research includes the *Discourse Completion Task* (DCT), free role-playing and multiple-choice tests (Martínez-Flor and Usó-Juan, 2010). Furthermore, interlanguage pragmatics research has mainly focused on the study of isolated aspects of the pragmatic competence of language learners. Some researchers such as Bardovi-Härlig (2001), Rose and Kasper (2001) and Schmidt (1993, 1995) have closely examined the pedagogical applications of pragmatics. In this regard, some of the main areas of study have been the *noticing* hypothesis, the concept of consciousness and the adult's role or *input* (Bardovi-Härlig and Griffin, 2005). However, some authors (Bardovi-Härlig, 1999; Kasper, 1992) point out that interlanguage pragmatics studies especially focus on the description or use of language, rather than on its acquisition.

Bardovi-Härlig and Griffin (2005) described four differences between the pragmatic production of native speakers and non-native speakers. First, differences in the production of speech acts; second, the use of different semantic formulas; third, the use of different content; and fourth, the use of a different form, such as the simplification of a formal application to an informal one. The results showed that, for example, some of the non-native speeches lacked an apology in a context where the student was late for a meeting, while native speakers did apologize. This example shows that in some cases, the students were able to recognize the required speech act (an apology) but did not execute it correctly with consistency. Additionally, the authors classified the good or bad use in many ways, which included expressions that were too elaborate or formal in a relatively informal situation, or not sufficiently formal for a given situation. Another difficulty encountered was the excessive use of pre-request, such as "if you don't mind". Native speakers use this technique to initiate the request (Bardovi-Härlig and Griffin, 2005), but once they receive a positive response to the pre-request, they usually do not repeat it again. However, in the learner's speech, the authors found that many students repeated these pre-requests in many instances.

There is a limited amount of research in the explicit relation to the interlanguage pragmatics of the students of Spanish as a foreign language. These mainly refer to the comparison of what English speakers and Spanish speakers do, without much focus on students of Spanish as a foreign language. According to Langer (2011), a large part of the literature also focuses on intercultural tests between Spanish and another language, usually English (Pinto, 2005).

According to Tatsuki, Kite and Maeda (2007), scholars and language teachers agree that teaching and acquiring the pragmatics of foreign languages have undergone a series of transformations in response to both sociological development and technological advances. These transformations include the introduction of films and videos to exemplify acts of speaking in native speakers, and video recording the results in foreign language learning sessions, since technology did not have a prominent role in previous years.

The evolution and impulse of research on the acquisition of foreign language pragmatics is based on the need to acquire a high pragmatic competence in the target language. Researchers and language teachers focus on studies aimed at transforming the pragmatics of foreign languages so that learning it is much easier for students. This need to acquire a high pragmatic competence in the language that is being learned is due to the fact that inculcating students with effective communication is now the main objective of language teachers. As previously explained, speaking in an inappropriate way according to the context can have a negative impact on communication. Pragmatics takes into account the context, so that their attention in the classroom is being valued little by little among the L2 educators of L2 (Vellenga, 2011; V. G. and Rajan, 2012).

Kasper (2006) has shown that the evolution of foreign language pragmatics is in line with the framework proposed by Canale and Swain (1980), which consists of three components: sociolinguistic competence (that is, adequacy), grammatical competence (lexicon and grammar rules) and strategic competence (appropriate use of communication strategies).

The following is the description of the speech act researched in the present study: the requests. These were selected because, according to Langer (2011), they tend to be the most used and possibly threatening for one's image. Avoiding threatening acts is important for students of foreign languages, since they not only risk communication, but likewise make the speaker run the risk of offending the listener or seeming rude.

Students of foreign languages can be expected to trust the strategies they use in their mother language to perform speech acts in the target language (Langer, 2011). This influence of the mother language in the use of the target language is known as pragmatic transfer, which can be positive when the rules and patterns of both languages coincide, and negative when they differ (Díaz Pérez, 2003). A successful student will be able to use the correct form pragmatically and grammatically in their production of the speech acts within the target language, according to the appropriate social norms in that speech community, which may differ from their own.

A request is a directive speech act whose illocutionary purpose is to get the listener to do something. When making a request, the speaker is understood as not being sure that the person being addressed would perform the requested action in the normal course of events (Searle, 1969). Because requests have the potential of being intrusive and demanding, the sender may be afraid of looking bad to the addressee and may want to "save their image" (Blum-Kulka, House and Kasper, 1989), both their own and the addressee's. Due to this reason, the sender sees the need to minimize the imposition involved from their request, for which they can use different resources, such as mitigation.

In literature on speech acts, requests have received more attention than any other speech act. Ellis (1994) explains that requests have been studied a lot because they are "face-threatening and, therefore, call for considerable linguistic expertise on the part of the learner, they differ cross-linguistically in interesting ways and they are often realized by means of clearly identifiable formulas" (p.167).

Requests have been mostly studied from the point of view of their production by foreign language students (Rodriguez, 2001). Most of these studies (Blum-Kulka 1991; Cenoz and Valencia, 1996; Garton, 2000) have shown that requests can be direct or indirect, and that they can be classified into different types according to the levels of the speaker's openness and the need to save their image (Blum-Kulka, House and Kasper, 1989). This classification is important because direct requests such as "I need food" are easier for language learners than indirect requests such as "I am hungry", expressed with the intention of requesting food.

In addition, according to Langer (2011), speakers make requests with different levels of formality. The speaker chooses an appropriate level of formality depending on the context, in order to lead the listener to perform a given action. The more the request is imposed, the more attenuation is required. In other words, if the request requires a great deal of effort or inconvenience, the speaker will look for tools to be more courteous in order to increase the likelihood that the goal will be achieved (Langer, 2011). The following table (Table 1) from Langer (2011, p.89) demonstrates the different levels of courtesy when ordering salt in Spanish.

Table 1
Courtesy level when making requests

Courtesy level	Formula	Level of inconvenience
Low	Pass the salt	Low
Low	Can you pass the salt	Low
Low	Can you pass me the salt	Low
High	Can you please pass me the salt	High
Higher	Would you please pass me the salt	Higher
Highest	Would you be so kind as to pass me the salt	Highest

Note: Source: Langer (2011)

In addition, the performance of a speech act varies depending on the relationship between the interlocutors and the degree of imposition that the request has on the listener. Blum-Kulka, House and Kasper (1989, p. 202) described the different strategies used by speakers when making requests, as shown below (Table 2).

Table 2
Strategies used to carry out the requests

Strategy	Example
Frankness level	
Direct	
Derivable of the mode	Close the door
Performative	I'm telling you to close the door
Modified performative	Do I have to ask you to close the door
Conventionally indirect	
Derivable of locution	I want you to close the door
Suggestive formula	What if we close the door?
Preparatory	Would you mind closing the door?
Non-conventionally indirect	
Strong insinuation	The door is open
Slight insinuation	It's cold here

Note: Source: Blum-Kulka, House and Kasper (1989)

The above examples are very useful for students who are learning a foreign language. Many studies on the acquisition of requests by foreign language students analyzed the ways in which students make requests in the target language. According to CARLA (2013), understanding how students make requests can help teachers teach students the correct request functions. For example, students of English as a foreign language sometimes believe that the longer the request is, the politer and more courteous it is. This may be due to prior education offered to them in their home country. Although this belief may capture the general trend of petitions in English, it is not true on a formal request such as "May I ...?" where, despite brevity, there is a high degree of deference. In turn, students could mistakenly use "May I...?" in an informal situation, believing that this is an informal request because of its brevity, as was the case in Matsumura's (2001) research on Japanese students learning English.

On the other hand, Blum-Kulka, House and Kasper (1989) discovered that students of English as a foreign language may be more elaborate than native English speakers when making a request given the number of support movements encountered. For example, when asking someone to take them somewhere, English learners might say: "Would it be possible for you to give me a lift to the restaurant since you live near there and have to drive that way if you take?" [¿Sería posible que me llevaras en tu coche al restaurante porque vives cerca y tienes que conducir hacia allí aunque me lleves o no?]. Blum-Kulka, House and Kasper (1989) explain that this elaboration is due to the student's effort to minimize imposition upon the listener, trying to explain the depth of the situation that leads the speaker to ask them for something.

Questions relating to learning to produce requests are not only limited to students of English as a foreign language. According to a study by Mizuno (1996),

Chinese students studying Japanese do not use as many support movement strategies as native speakers do. Native speakers tend to spend more time using various support movements and more linguistically complex structures than learners. Native Chinese speakers generally use more direct requests and transfer their own native norm when speaking Japanese. Therefore, Chinese students have to be highly competent and linguistically sophisticated in order to build more complex structures in Japanese.

Studies by Kashiwazaki (1993) and Sameshima (1998) on early and intermediate levels of Japanese by Chinese students found that they generally use phrases made to order, such as "...te kudasai masenka? [Could you...?] or "...te itadake masenka?" Could I...?], possibly due to the frequent use of these structures in Japanese language textbooks. Intermediate and advanced students tend to make more requests as a native would, by using incomplete phrases, omitting "iidesuka" [would that be okay?].

Lastly, Kashiwazaki (1993) found that, before producing the central act of a request, native Japanese speakers often use the phrase "...no nandesukedo koto" [regarding...], to announce the topic and prepare the listener for the impending request. Japanese speakers also leave their request sentences unfinished, reaching the end of the sentence by prolonging the syllables. This helps to minimize imposition and shows consideration for the listener. When students of Japanese lack these strategies, they may appear abrupt or imposing. If the sender does not announce the subject from the beginning, the listener may need to guess or assume something and therefore the expression may be confusing.

All the above studies indicate the need for foreign language learners to learn pragmatic characteristics specific to the target language, such as performing and responding to speech acts. Although not all of the cited study examples were related to students of Spanish as a foreign language, the same rule would apply to any language learner who cannot always come to understand the intrinsic nuances of the language they are learning.

Method

To address the previous objectives, the following research question was selected:

- Do pragmatic classroom interventions positively influence the ability of students of Spanish as a foreign language to use requests in an appropriate manner (in accordance with the notions of pragmatic appropriateness as established by previous research)?

To answer this research question, two groups of students were selected from one higher education institution from the Midwestern region of the United States. These groups participated in the study for the entire spring quarter of 2017. Group one will be called the L2 experimental group and group two the L2 control group. The aim of the L2 control group was to determine whether pragmatic growth in request strategies could be attributed to other variables, such as grammar and vocabulary lessons.

Among all the groups, 16 students decided to participate, aged between 17-35 years, with an average of 22 years. These 16 participants were divided equally into two groups of 8. All of these students successfully completed the Spanish I course and enrolled in their second semester at the university level of Spanish (meaning four months of language study; with the students studying Spanish for four additional months during Spanish II, with a total of eight months of language study in the first

year). The grammatical approach of Spanish I is based on the conjugations in the present, including all the irregular ones, those that have root and reflexive changes, and the present continuous. And also the most basic differences between the uses of *por* and *para* and *sabe*r and *conocer*. In Spanish II, students learn the differences between the preterite indicative and preterite tense, including their conjugations (regular, irregular and those with root change), the direct and indirect object pronouns and the future tense in Spanish. Students from these groups were born and raised in the United States, with the exception of one student from Australia, so all participants in the two groups are native English speakers.

Prior to the spring of 2017, the Institutional Review Board authorized the completion of this research project. The previous biographical information was obtained directly from the participants who signed a consent form and completed a background questionnaire.

During the first week of the semester, the students in all the groups underwent a written test of the end of the speech (DCT) and an oral DCT. Both DCTs (see appendices) consisted of 10 scenarios in which students had to respond to an equal number of formal and informal situations with different levels of imposition. These oral and written DCTs served as preliminary tests for the purpose of this study. The purpose of the preliminary tests was to evaluate the participants' pragmatic competence before class instruction. Throughout the semester, three pragmatic lessons (interventions) were given on the request strategies in group 1 (experimental). All departmental and course learning outcomes remained intact, and no other classroom elements were modified so as not to create additional variables between the control and experimental groups. The pragmatic lessons on the requests were based on the activities designed by Langer (2013), the Advanced Research Center on Language Acquisition [CARLA] (2013) and Martín Ruiz (2011) and were modified to meet the students' needs. The lessons consisted of three 20-minute sessions, with a total of approximately 60 minutes, and dealt with the differences between formal and informal situations, ranging from minor to highest impositions and situations that exposed the students to the indirect nature and oriented to the Spanish listener (Langer, 2013). The first intervention began with an explicit lesson that showed typical request strategies in Spanish by level of imposition and explained the listener-oriented nature of these requests. The second half of this first lesson and the remaining two lessons followed a more implicit approach. In the last lesson, students had the opportunity to see clips from popular Spanish films that contained a variety of requests and which they had to categorize according to the instructions found in Martín Ruiz (2011).

At the end of the semester, after the students in group one (experimental) had been exposed to the three pragmatic interventions, the participants in the two groups did the same written and oral DCTs that they did at the beginning of the semester, in order to measure potential growth in their pragmatic competence. These oral and written DCTs served as further tests for the purpose of this study.

At the end of the four-month period, the data was analyzed using criteria based on CARLA's (2006) and Langer's (2013) research to determine what is considered a pragmatically appropriate request in Spanish (see Appendix). Based on the knowledge from these studies, the researcher searched for listener-oriented strategies, conventional indirect strategies, the student offering a reason and the use of "tú" (informal 'you') or "usted" (formal 'you') conjugation depending on the situation. Other L2 features, such as spelling or grammatical errors, were not included in the data analysis. The researcher listened to and read each response from the pre- and post-tests and marked them as "adheres" or "does not adhere" to the pragmatic norms according to the previously

mentioned criteria (Appendix). When an item was marked as "does not adhere", a comment was left explaining why it was considered inappropriate.

Results

To analyze the results of the study, it is important to review the research question. The research question attempted to discover whether pragmatic interventions in the classroom had a positive impact on the pragmatic request of L2 students. As such, a paired t-test was used to determine whether there was a statistically significant growth between pre- and post-test (written and oral DTCs) within group one (experimental). The average scores on pre-tests for group 1 were 30% for written DCT and 36.25% for oral DCT. Post-test scores were 37.5% for written DCT and 38.75% for oral DCT.

Table 3
The results of the t-test paired in group 1 (experimental)

	Pre-test Results	Post-test Result
Mean	33.125	38.125
DS (σ)	4.4194	0.8839
SEM	3.125	0.625
N	8	8

The *P* value of the two lists for group 1 equals 0.2952; as such, the difference between the pre- and post-test is not considered statistically significant. However, post-test results in group 1 increased by 7.5% between pre and post written DCTs and by 2.5% between pre and post oral DCTs.

Although not statistically significant, the growth between the pre- and post-test in group 1 questioned the possibility of other factors or variables that might have influenced the competence of student requests in this group, such as grammar lessons, as some research indicated, suggesting that grammar may contribute positively to pragmatic competence (Bachelor, 2015; Bachelor, 2016). Therefore, the difference between the pre- and post-test in control group L2 (group 2) was also briefly analyzed. There was a growth of 3.75% in this group between pre and post written DCTs. and 0% between pre and post oral DCTs. With this in mind, we can suggest that other variables did not probably play an important role in the growth of group 1 between pre- and post-tests.

Discussion and conclusions

When analyzing the findings, it appears that the pragmatic interventions did not help the students in a statistically significant way; however, the experimental group developed slight improvements after the lessons. This suggests that lessons on pragmatics may be especially useful for L2 students.

The subject teacher was satisfied with the 7.5% increase in written DCT and the 2.5% increase in oral DCT. As such, he plans to use these lessons again in the future. It is important to note that the written tests experienced a greater increase. This may be due to the facts that students had more time to think about their responses as they write and that their ability to implement what they learned in the classroom in their speech may take longer in seeing greater success with additional interventions.

However, as we saw, there is no increase in the control group. Therefore, the class teacher could determine that the pragmatic lessons (and not other variables) were the ones that caused the increase in the experimental group.

As explained at the beginning of the article, there is a tendency to teach languages with communication as the main objective (Poehner and van Compernolle, 2011; Sidek, 2012; Tamjid and Birjandi, 2011) and, therefore, social understanding and cultural signals are more important than ever (Bachman and Palmer, 2010; Roever, 2011). This research attempts to encourage teachers to include pragmatic elements in the classroom, as these errors are more serious than errors of other kinds.

The pedagogical implications of this research should have an impact on teachers who did not value the teaching of pragmatics, since the results of the research question show that pragmatic instruction helps pragmatic correction, as they better justify explaining the importance of pragmatics in the Spanish language classroom (ELE).

Through the results of this study, it is expected that teachers of Spanish as a foreign language and of other languages, as well as instructors of teachers in training, develop educational standards for pragmatic instruction in all of their programs. This way, L2 educators will come to value pragmatic instruction.

Applied linguistics scholars are also expected to continue analyzing the pragmatics of foreign language students in order to progress in the knowledge of what is explained in this section.

Teachers will continue to design curricula to meet their programs and learning outcomes. We also hope that they include pragmatic elements, since the learning outcomes should pay attention to real world application, which is precisely what pragmatic lessons do. It is the primary responsibility as a foreign language teacher to find and develop effective lessons for students. Therefore, pragmatic instruction must be highly regarded.

As mentioned before, some authors (Bardovi-Härlig, 1999; Kasper, 1992) pointed out that interlanguage pragmatic studies focus specifically on the description or use of language, rather than on its acquisition. For this reason, the following study sought to make a comparison of the speech acts of students before and after the interventions, so as to be added to the corpus of studies focused on the acquisition of speech acts.

Regarding the author's recommendations for teachers of Spanish as a Foreign Language, the students seemed to better understand the use of the requests in Spanish with the explicit lessons, since in a subject of only about four months, an implicit acquisition of pragmatics could even take years (Bachelor, 2016). However, we had an implicit lesson between the three of them, but it was necessary to raise the student's awareness through questions related to the act of speaking in order not to teach the functions in an explicit way, but rather to facilitate the student's understanding. For these reasons, the study instructor recommends a mixture of explicit and implicit teachings, provided that the implicit teachings are well structured in helping the student process the information.

Lastly, the researcher acknowledges that the data collection period (one four-month period), the number of participants, and the evaluation criteria (there is no consensus on what is considered pragmatically appropriate) pose certain limitations for this study. Therefore, future research addressing these limitations should definitely be carried out in the near future.

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Anexos

Anexo 1

Written Discourse Completion Task (DCT)

Respond in writing to each scenario in Spanish in a culturally appropriate way. This does not count towards your grade and is for research-purposes only, so please do not use handouts, the textbook, dictionaries, friends, translators, etc.

1) You forgot your Spanish textbook at home and ask a classmate if you can borrow his/her book for the day.
You say:

2) You run into the college president on your way to the cafeteria and ask him to lower (*rebajar*) tuition (*matrícula*) costs.
You say:

3) You and a Spanish classmate are working on a cultural presentation together but s/he is sending text messages instead of helping you.
You say:

4) You are at a restaurant and there isn't salt at your table. You see that an older lady at the table next to you has salt and isn't using it. You decide to ask her for it.
You say:

5) You are at the college cafeteria and realize that you forgot your money at home. You ask a friend for a few dollars.
You say:

6) You forgot your homework and need to ask your professor if it's okay to turn it in tomorrow.
You say:

7) You were sick last class period and need to ask your roommate (who is also in your class) to see his/her notes.
You say:

8) You are struggling in an introduction to statistics course and ask the TA (teacher's assistant) to tutor you.
You say:

9) You are studying for finals and your roommate has the TV volume turned up all the way.
You say:

10) You are at the grocery store and need to buy eggs but there are none on the shelf. You decide to ask a worker to bring out more.
You say:

Anexo 2

Oral Discourse Completion Task (DCT)

Respond orally in Spanish to each scenario in a culturally appropriate way. This does not count towards your grade and is for research-purposes only, so please do not use handouts, the textbook, dictionaries, friends, translators, etc.

1) You are finding one of your courses very challenging. At the end of class, you ask one of your classmates for help with this course.
You say:

2) You realize that your final exam for one of your courses is on a very inconvenient date for you. You go to your professor's office to ask about taking the final on a different date.
You say:

3) You are invited to a potluck with friends and want to cook a family recipe. You call your mother to ask for the recipe.
You say:

4) You work at a local restaurant and need to take the day off. You go talk to your manager to ask for the day off.
You say:

5) Your car is at the repair shop and you need to go pick it up. You ask your sibling for a ride to the repair shop.
You say:

6) You are at a job interview for a position at a school. At the end of the interview, you ask the interviewer to let you know when you will have an answer about their decision for the position.
You say:

7) You live in a college dorm. You are having a party this weekend and ask your roommate to borrow some of his/her clothes.
You say:

8) You are walking down the sidewalk and need some help with directions. You see a couple of policemen and decide to ask them for help.
You say:

9) You are at home. Your dad is watching a soccer game on TV and the volume is really loud. You are trying to work on your homework but cannot focus with the game. You ask your dad to turn down the volume.
You say:

10) You are in a packed grocery store and need to get home as soon as possible. You only have two items in your basket but all the cashier lines are really long. You ask the people in one of the lines to go first.
You say:

Anexo 3

Grading criteria for oral and written DCTs

General instructions: *Go through each response and mark it as either "adheres" or "does not adhere" to pragmatic norms based on the following criteria. Provide a comment explaining what did not adhere, when applicable.*

Formal situations (numbers 2, 4, 6, 8, 10). Students should use one or more of the following strategies, as interpreted by the grader, per Langer (2013, p. 1157) and *CARLA* (2006):

- The person being asked to do something is the subject of the sentence (hearer-oriented)
- Conventionally indirect
- Offers a reason
- Use of "usted/ustedes" conjugations
- Use of "le/s importaría*" + infinitive

* If the grader sees as more appropriate due to the level of imposition, use of the present tense of "usted/ustedes" may be deemed appropriate

Informal situations (numbers 1, 3, 5, 7, 9). Students should use one or more of the following strategies, as determined by the grader, per Langer (2013, p. 1157) and *CARLA* (2006):

- The person being asked to do something is the subject of the sentence (hearer-oriented)
- Conventionally indirect, though commands may be deemed acceptable*

* This is based on the relationship involved and the level of imposition, as determined by the grader
Offers a reason
Use of "tú" conjugations

- Use of "te importa*" + infinitive

* If the grader sees as more appropriate due to the level of imposition, use of the conditional tense of "tú" may be deemed appropriate

Sample of how to grade student responses:

1. "You forgot your Spanish textbook at home and ask a classmate if you can borrow his/her book for the day."
Student response: ¿Me puedes prestar tu libro?
Grader: Adheres

2. "You forgot your Spanish textbook at home and ask a classmate if you can borrow his/her book for the day."
Student response: ¿Te importa prestarme tu libro? Tengo que estudiar y mi libro está en casa.

Grader: Adheres

3. "You forgot your Spanish textbook at home and ask a classmate if you can borrow his/her book for the day."
Student response: ¿Puedo tener tu libro?
Grader: Does not adhere, the response is not hearer-oriented

4. "You forgot your Spanish textbook at home and ask a classmate if you can borrow his/her book for the day."
Student response: ¿Le importaría prestarme su libro?
Grader: Does not adhere, the response is too formal, the strategy does not match the level of imposition

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DEBATE AS A METHODOLOGICAL STRATEGY FOR THE DEVELOPMENT OF GENERIC COMPETENCES OF THE TUNING PROJECT FOR LATIN AMERICA

Edison Francisco Higuera Aguirre
Pontificia Universidad Católica del Ecuador, Ecuador
ehiguera821@puce.edu.ec · https://orcid.org/0000-0002-5543-1524
Dennis Schutijser de Groot
Pontificia Universidad Católica del Ecuador, Ecuador
DSCHUTIJSER667@puce.edu.ec · http://orcid.org/0000-0003-0301-681X
Virginia Isabel Salinas Cárdenas
Pontificia Universidad Católica del Ecuador, Ecuador
vsalinas472@puce.edu.ec · https://orcid.org/0000-0003-0271-6857

Abstract. This work focuses on the analysis of three competences of the Tuning Project for Latin America. Its purpose is to determine to what extent does debate, used as a methodological strategy, enable the development of three generic competences of the Tuning Project for Latin America in students in the curriculum of Philosophy at the Pontifical Catholic University in Ecuador (*Spanish acronym* PUCE): the ability to communicate orally and in writing; the skills to search, process and analyze information from various sources; and, the ability to apply knowledge in practice. The research uses a quantitative approach, with a quasi-experimental design, based on groups of students in two courses, albeit with subgroups constituted through pairing, with a single post-test and with the assumption of a causal relationship between variables. The instrument used in the analysis and developed by the research team, is the basic questionnaire for establishing the contribution of the debate for the development of generic competences. The provisional results of the study indicate that the debate could favor the development of those analyzed competences. However, due to the size of the sample and the current state of the research, its results cannot be extrapolated to other groups and contexts, which requires further study applications.

Keywords: Education and Philosophy, Dialectics, didactic strategy, generic competences, competence development.

EL DEBATE COMO ESTRATEGIA METODOLÓGICA PARA EL DESARROLLO DE LAS COMPETENCIAS GENÉRICAS DEL PROYECTO TUNING PARA AMÉRICA LATINA

Resumen. Este trabajo se centra en el análisis de tres competencias del Proyecto Tuning para América Latina. Su propósito consiste en determinar en qué medida el debate, utilizado como estrategia metodológica, permite el desarrollo de tres competencias genéricas del Proyecto Tuning para América Latina, en los estudiantes de la carrera de Filosofía de la Pontificia Universidad Católica del Ecuador: la capacidad de comunicación oral y escrita; las habilidades para buscar, procesar y analizar información procedente de diversas fuentes; y, la capacidad de aplicar los conocimientos en la práctica. La investigación aplica un enfoque cuantitativo, con un diseño cuasiexperimental, basado en grupos preexistentes de estudiantes de dos asignaturas, con subgrupos constituidos por emparejamiento, con una sola posprueba y con la presunción de una relación causal entre variables. El instrumento de análisis, elaborado por el equipo de investigación, es el "Cuestionario básico para establecer el aporte del debate para el desarrollo de competencias genéricas". Los resultados provisionales del estudio señalan que el debate podría favorecer el desarrollo de aquellas competencias analizadas. Sin embargo, debido al tamaño de la muestra y al estado actual de la investigación, sus resultados no son extrapolables a otros grupos y contextos, por lo que se requiere ulteriores aplicaciones del estudio.

Palabras claves: Educación y Filosofía, Dialéctica, estrategia didáctica, competencias genéricas, desarrollo de competencias.

Introduction

The Tuning Project has highlighted the importance for university students to develop a set of generic competences (González and Wagenaar, 2005: 12). The 17 generic competences mentioned by Tuning are as follows: 1) Basic knowledge of the field; 2) Capacity for analysis and synthesis; 3) Capacity for learning; 4) Creativity, 5) Applying knowledge in practice; 6) Adaptability; 7) Capacity for criticism and self-criticism; 8) Basic knowledge of the profession; 9) Research skills; 10) Interdisciplinarity; 11) Oral and written communication; 12) Ethical commitment; 13) Interpersonal skills; 14) Knowledge of a second language; 15) Elementary computing; 16) Decision making; y 17) Diversity and multiculturism (González and Wagenaar, 2005: 141-142).

In this same way, the Tuning Project for Latin America has defined its list of generic competences: 1) Capacity for abstraction, analysis and synthesis; 2) Capacity for implementing knowledge in practice; 3) Time organization and planning capacity; 4) Knowledge on the field of study and the job; 5) Social responsibility and civic commitment; 6) Capacity for communicating written and orally; 7) Capacity for communicating in a second language; 8) Capacity for using information and communications technology; 9) Research capacity; 10) Capacity for learning and updating constantly; 11) Capacity for searching, processing and analyzing information from diverse sources; 12) Capacity for criticism and self-criticism; 13) Capacity for taking action in new situations; 14) Creative capacity; 15) Capacity for identifying, posing and solving problems; 16) Capacity for decision making; 17) Capacity for teamwork; 18) Interpersonal abilities; 19) Capacity for motivating and leading toward common goals; 20) Commitment with environmental preservation; 21) Commitment with the socio-cultural environment; 22) Valuing and respecting diversity and multiculturalism; 23) Capacity for working in international contexts; 24) Capacity for

working autonomously; 25) Capacity for formulating and managing projects; 26) Ethical commitment; 27) Commitment to quality. (http://www.tuningal.org/es/competencias/geologia)

The review of specialized literature in Spanish language evidences the growing importance of the subject in the last years (Bujan, et al., 2011; Climént, 2011; Espíndola, 2011; Pimienta and García, 2012; Ruiz, 2010; Tobón, 2013). However, no systemic studies have been found which indicate the way students should develop each one of those generic competences. On the contrary, there are isolated studies on the development of some generic competences. For instance, on the development of communicative competences (Sánchez and Brito, 2015), on argumentative competences (Sabaté de Sirgo and López, 2010), on the development of critical thinking in university students through problem-based learning (Núñez-López et al., 2017), etc.

Theoretically, many educators both in Europe and in Latin America acknowledge the importance of competences in higher education. According to them, it is essential that students' graduation brings to light the development of those generic competences discussed above. However, the way of achieving this goal is yet to be detailed. In other words, 'how do we proceed in order to get our students to learn and develop said competences?' (Montenegro, 2005: 57).

We do not try and deny that there are differing voices concerning the actual purpose of competences. In that sense, some question their possible motivations associated to the so-called 'age of quality', where 'tangible results' are required ((Díaz-Barriga, 2011: 5), wishing to highlight its 'inconsistence' (Planas-Coll, 2013).

Beyond the debates about the importance and motivations of the incorporation of competences in professional training, this article analyzes the way they are develop. It reviews the way in which debate enables the development of the three generic competences mentioned in the Tuning Project for Latin America: 1) Capacity for written and oral communication; 2) capacity for searching, processing and analyzing information from diverse sources, and 3) capacity for implementing knowledge in practice. The research on the field is carried out by students from the Degree in Philosophy in the Pontifical Catholic University of Ecuador (*Pontificia Universidad Católica del Ecuador*) during the first and second semester of the academic year 2016-2017 (September 2016 - February 2017; April - August 2017, respectively).

The following is the question that led the way in the research: To which extent does the debate, used as a methodological strategy, enable the development of those three generic competencies of the Tuning Project for Latin America, as mentioned above, in students studying Philosophy at the Pontifical Catholic University of Ecuador? The hypothesis of the present research work states that the frequent use of debates promotes the development of the three aforementioned generic competences: oral and written communication; capacity for searching, processing and analyzing information; and the capacity for implementing knowledge in practice.

According to Vila, Dávila & Mora: "The acquisition of the necessary competencies for innovation by graduates depends (...) on which learning methods they were most exposed to during their lives as university students." (2010: 8). This study aims to establish the extent to which the debate contributes to the development of the three chosen generic competences. So, if the results support the research hypothesis, the degree's professor should use debates as a teaching, learning and assessment strategy more often.

According to the Royal Spanish Academy, "debate" (*debate*) comes from the verb "debatir" (to debate) and has two meanings: 1) controversy and 2) strife, fight (http://dle.rae.es). For the purposes of this research, the term debate is used to refer to an organized academic discussion, between two groups of students within the same university subject, with a theme, times and places determined by the teacher; and with the participation of a student as moderator.

On the other hand, competences can be defined as a "a set of knowledge, attitudes, dispositions and skills (cognitive, social-affective and communicative), all interrelated to help students during the learning process, including the development of a new sense of activity in new and challenging contexts. Therefore, competence implies knowing, being, and knowing how to do" (http://www.mineducacion.gov.co). This research uses the term competence according to the spirit of the Tuning Project: "Competences represent a dynamic combination of knowledge, understanding, skills and abilities" (González & Wagenaar, 2005: 32).

Method

Design

The research was developed by means of a quantitative approach, with a quasi-experimental design, because the study is carried out with groups of students from two subjects of the Philosophy degree, with subgroups established by pairing without the existence of a control group: The groups were integrated by pairing, taking into account their academic performance history. The design foresees a post-test and presumes the existence of a causal relationship between the independent variable that is the debate, and the dependent variable that are the generic competences (competences 6, 11 and 2 of the Tuning Project for Latin America).

Participants

The study has been carried out with two groups of students from two parallel semesters of the Pontifical Catholic University of Ecuador. The first group consisted of 18 students from the third semester of Philosophy within the Ontology subject. The second was made up of 11 students from the sixth semester of the Political Philosophy subject. For the sample's estimation, it should be noted that there are 60 students on average in the degree.

The distribution of activities for the Ontology students in the third semester is detailed below. Two 96-minute debate days were planned with the 18 students. The following responsibilities were assigned with one month in advance: a student-moderator for each day was appointed, along with a group coordinator and their respective members. In addition, the general conditions of participation were established, such as the timetable for the debates, the groups that would assume the role of defense of classical metaphysics and those who would oppose it, and the evaluation rubric for the debaters and moderators. Lastly, two teachers were invited as observers and evaluators of the debate. The first debate included a moderator, 5 students from group 1 and 4 students from group 2. The second debate included a moderator, 3 students from group 1 and 4 students from group 2. At first, both groups from the second debate were made up of 4 students, but one of them withdrew from the university before the end of the semester. At the end of each debate, participants were asked to answer the questionnaire.

With the 11 students from Political Philosophy in their sixth semester, three debate sessions were planned, each lasting 38 minutes. Approximately two weeks before the first debate, an informative document that included a description, the roles, and a summary of the procedure of the directed debate was distributed (ANNEX). A relevant course topic was identified one week in advance for each session, and a moderator and a secretary were appointed, as well as members for the defense (group 1) and the opposition (group 2). Students who were not assigned a role within the debate were allocated jury responsibility. The following were the topics discussed: "Socrates must accept the capital punishment pronounced against his person"; "The use of the atomic bomb was permitted to put an end to the Second World War"; "The government must guarantee total freedom of expression." The first debate included a moderator, 3 students from group 1 and 2 students from group 2. The second debate included a moderator, a secretary, 2 students from group 1 and 3 students from group 2. The third debate included a moderator, a secretary, 3 students from group 1 and 3 students from group 2. Both debates planned to include 3 students per group, the lower figures are due to the unjustified absences of students. At the end of the three debates, participants were asked to answer the questionnaire.

Measuring instrument

The instrument, designed by the team is called the "Basic questionnaire for establishing the debate's contribution to the development of the generic competences." This questionnaire is divided into 5 parts: In the first one, 13 generic competences of the Tuning Project for Latin America are listed; and students are asked to select the 3 that they consider they have developed by working in the debate. In the second part, the skills developed in the field of oral and written communication are investigated. In the third part, questions are asked about the skills related to the search, processing and analysis of information from several sources. In the fourth one, the application of previous knowledge during the debate is considered. Lastly, the fifth is about the possibility of using the three analyzed competences. The questionnaire is present in the appendix section.

Procedure

The two debates of the Ontology subject were held during the week of the final exams of the first semester 2016-2017. For this purpose, the classroom was adapted by assigning physical spaces for the groups, the moderator and the evaluating teachers.

The debate began with the greeting and the general indications of the moderator (4 minutes). Then each group made the first presentation on their position of the topic, 15 minutes each. The first part concluded with the summary of the two positions 3 minutes and time for both groups to exchange opinions for 5 minutes. The second part enables the reply for each group for 10 minutes and the moderator's summary for 3 minutes. The second part enables the rejoinder for each group for 5 minutes and the moderator's summary for 3 minutes. The debate ends with the moderator's conclusions for 5 minutes.

Finally, there is a space of 10 minutes for the students to answer the questionnaire and the checklist. The evaluators also rate the individual rubrics of the participants and the moderators.

The 3 debates of the Political Philosophy subject were held at three different times during the course of the second semester 2016-2017, in weeks 3, 8 and 14 respectively.

The debate began with the greeting and the general indications of the moderator (2 minutes). Then each group presented their position for the topic, 4 minutes each. The first part concluded with a summary of the two positions, and a 2-minute deliberation time for both groups. The second part enabled the reply for each group for 4 minutes and the moderator's summary for 2 minutes. Both groups then had the opportunity to exchange opinions for 5 minutes.

Results

The results of the "Basic questionnaire for establishing the debate's contribution for developing generic competencies" are presented. This questionnaire was filled out by 16 third-year students from the Philosophy degree and by 9 sixth-year students from the *Political Philosophy* subject after the debates. Students who were moderators in the debate were excluded.

Generic Competencies

As shown in Figure 1, the most important generic competency in both groups is the capacity to identify, pose and solve problems (9); while the capacity for teamwork, (10) and commitment to quality (13) were not addressed in the debate. For both groups, the capacity for abstraction, analysis and summary was involved in approximately 50%.

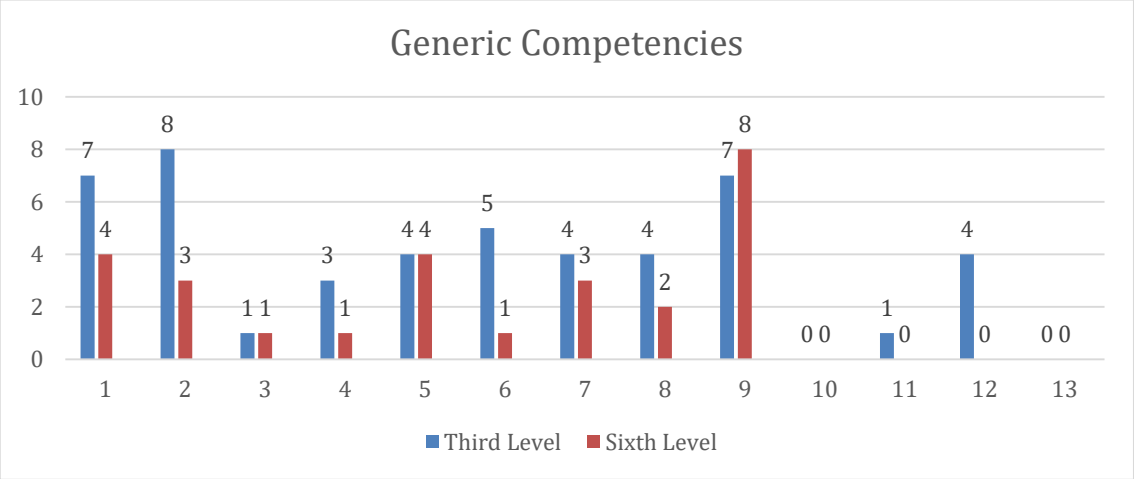

Figure 1. Generic competences from the third and sixth level

In the third level, the capacity for implementing knowledge in practice (2) has been selected by 50% of the participants. In the sixth level, the capacity for research (5) was considered as representative.

Oral and written communication

The personal difficulties that students experienced when verbally expressing their ideas during the debate were the following:

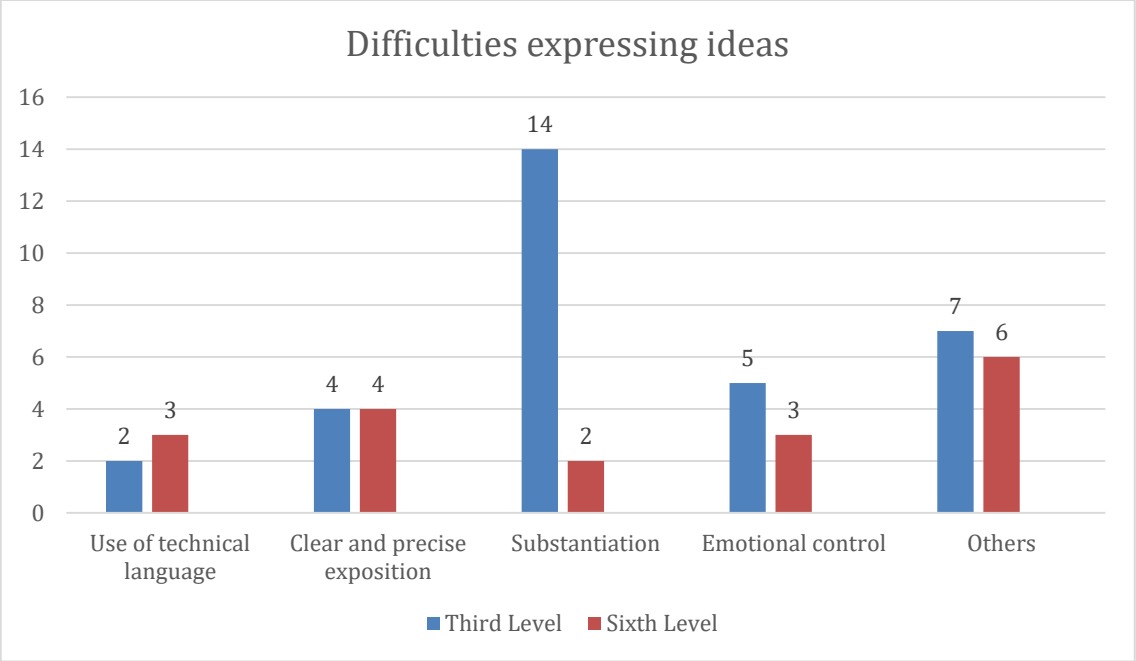

Figure 2. Personal difficulties expressing ideas

When processing information for such open-ended questions, the answers were classified into the five fields pointed out in Figure 2: Use of technical language, clarity and precision when explaining, substantiating, emotional control and others. The difficulty for substantiating can be seen to be significant in the third level, while the most representative difficulty in the sixth level is another one due to the variety of views expressed.

Regarding communicative skills developed during the debate, which can be useful in the future, five categories were established: clear and precise exposition, reasoning, analysis of points of view, information search and others. For both student groups, information search was the least developed communication capacity during debate, while reasoning was the most applied.

Skills for searching, processing and analyzing information

In the skills for searching, processing and analyzing information from diverse sources, different resources which students used for this purpose were set out.

Table 1
Resources for information search

List	Resources	Third Level	Sixth Level
1	Books	15	9
2	Recurrent publications: Journals, bulletins, series, annuals	5	3
3	Scientific reports	4	2
4	Technical reports	2	2
5	Research programs	1	1
6	Congressional Acts	0	0
7	Doctoral thesis	4	2
8	Library or periodic publication catalogs.	5	0
9	Patents	1	0
10	Bibliographies	8	3
11	Official publications or from public authorities.	1	1
12	Indexes and summaries	5	2
13	Reference works: dictionaries, encyclopedias, monographs, treatises	11	4
14	Search engines and Internet directories	6	4
15	Specialized Internet data bases	7	3
16	Others	2	0

In Table 2, we can see that Books (1) resource has been the most selected one by both groups, except for a single a third-level student. No one in both groups chose the Congressional Acts (6) resource.

In third level, there was a significant use of Reference works: dictionaries, encyclopedias, monographs, treatises (13). Approximately 50% of students considered that the following aspects (bibliographies (10), Search engines and Internet directories (14) and Specialized Internet data bases (15)) were important resources for searching information.

In the sixth level, the following resources were important: Reference works: dictionaries, encyclopedias, monographs, treatises (13) and Search engines and Internet directories (14), whereas the Library or periodic publication catalogs (8), Patents (9) and Others (16) resources were not significant either.

The following are the steps that students apply to processing information. For both groups, the review and organization of information is highly significant, with approximately 50% favoring data classification and compilation. In both cases, it was observed that the step of presentation by means of graphs and tables was almost not used.

The actions used by the students for the analysis of information are summarized in the following table and graph:

Table 2
Actions for information analysis

List	Actions	Third Level	Sixth Level
1	Identifying the question(s) you want to answer	12	7
2	Selecting the required information	10	3
3	Ensuring the quality of the available data	9	5
4	Establishing interrelationships between data: causal relationships or chains through which questions can be answered.	7	5
5	Interpreting the data: drawing generalizable conclusions from the analyzed data.	9	3
6	Making recommendations	4	1

Of the respondents in the two groups, they primarily applied the action 'Identify the question(s) to be answered (1)' All other actions are considered important, except the 'Making recommendations' (6), as this is the least recorded option.

The two difficulties experienced during the search, processing and individual analysis of the information are mentioned below. About half of the students in both groups have difficulty searching for information in the fields: Criteria for determining the importance of the material found. The students at the third level consider that their greatest difficulty consists of 'Access to quality printed materials'.

Difficulties encountered during information processing. We can conclude that approximately half of the students in both groups included among the difficulties during information processing the 'Lack or organization of the group for information review' and 'Lack of group organization for data classification'. Sixth-level students also considered that the 'Lack of group organization for the information' is important, with no significance for the 'Lack of group organization for data compilation'.

Concerning the difficulties for the analysis of information, the following was considered: the ability to identify questions, to select this information, to determine the quality of the data, to establish relationships and to interpret the data.

For third-level students, the difficulties related to 'Problems in identifying the question(s) to be answered and 'Problems for the quality of the available data' are more important. In the sixth level, it is considered that the most representative difficulty is related to 'Problems with interpreting the data'.

Application

It was then asked, at which of the three moments during the debate did the students consider it was required to apply the knowledge developed during the present course: during the exposition, during the reply or during the rejoinder. The third-level students consider that the knowledge developed in the course was useful during the reply; while the sixth-level students gave equal importance to the application during the three moments of the debate.

It was then consulted at what point in the debate did they need to apply the knowledge acquired during their research prior to the debate. In this case, there was no significant difference between the two groups with respect to the times when they needed to apply the knowledge acquired in the research prior to the debate. The third level students gave greater importance to the exposition and rejoinder, and the sixth

level students gave relatively greater importance to the moment of exposition, with less consideration to the rejoinder.

Prospective

Students were then asked to list the communication, research, and application skills developed during the debate that would serve them in the future. In this open-ended question, third-level students assigned almost as much importance to language development, argumentation, and others, while sixth level students considered language development to be more significant.

Regarding the research skills developed during the debate, the answers were classified into three categories: search and selection of sources, information analysis and others. Third level students give more importance to the search and selection of sources compared to information analysis, with little relevance in interest. The first two options were selected by 4 students in sixth level, while only one selected interest.

In the skills for implementing the knowledge developed in the debate, four options were identified. In the third level, the skills, presentation of ideas and debate gain more representation, whereas the "other" category (time, teamwork and nerves) was not very much represented. In the sixth level, they give greater importance to the skills, analysis and the synthesis of ideas or data and what they consider teamwork and stress.

Discussion and Conclusions

In the results analysis, some of the characteristics of research must be taken into account. The results are obtained from a sample of 29 students, except for four students who acted as moderators. While the use of a debate by its nature lends itself to small groups, the consequence is also that the results do not always have the same persuasive force. In addition, the composition of the two groups is different. The first group consisted of students from the first levels of Philosophy (third level), 17 of which would transfer to Theology after the fourth level. The second group is from an advanced level of Philosophy (sixth semester), which come from the degree of Philosophy and other degrees (Sociology, for example), and which study these subjects by choice. It turns out that the commitment to the subject, as well as to the methodology of the debate, could differ between the two groups, constituting a variable that has not been considered in the analysis of the results. There is no doubt that this difference in the composition of the groups may have had conclusive impact on the final results of the study.

It should also be mentioned that other variables that could be determinant in the analysis of the results, such as gender, age, nationality, social class of the participants, were not considered. Despite this concern, the following observations could be made.

General competence 1: capacity for oral and written communication

A notable result in both groups is the relatively low importance attached to learning collaborative skills. Thus, in terms of the competencies developed (question 1), both "teamwork competence" and "interpersonal skills" receive little or no mention, even though one might have expected to find some emphasis on these skills due to the nature of the degree.

The previous observation can be cross-checked with the answers to the question that focuses on the "exposition of ideas and debate", which is a knowledge application

skill developed during the debate of major importance to the students in the first group. This possible contradiction could be interpreted, precisely, by the consideration that such oral skills are commonly taken as secondary skills in Philosophy. When identifying generic competencies relevant to the degree, expressive skills are not mentioned. However, when it comes to application skills, in other words, the most recurrent topic is that they are understood as skills that are not necessarily used in the studies themselves but may serve outside the academic context in everyday life or in a future professional environment.

General competence 2: the skills for searching, processing and analyzing information from diverse sources

The great importance recognized by both groups in the capacity for identifying, posing and solving problems, together with the notable mention in the first group of the ability to abstract, analyze and synthesize, enables us to assume that the second general competence mentioned in the Tuning Project for Latin America ("the capacity for searching, processing and analyzing information from diverse sources") must be achieved by both groups.

This observation is first and foremost confirmed in the first group, expressly in the answer to the question “personal difficulties in verbally expressing their ideas during the debate”. The high presence of problems of theoretical basis illustrates a difficulty encountered by students in conducting the debate. And considering that one learns precisely through encounters with difficulties and challenges, one can consider that such difficulties have provided a significant moment of learning for the students.

The slightly lower confirmation in the second group in relation to this point could be explained by the fact that the students in the second group are at a more advanced level in their studies. Therefore, the strategies of searching, processing and analyzing information are already known to them, by which the debate does not seem to add a real new contribution to the appropriate knowledge and strategies.

Regarding the use of different sources to find the information required for discussions, it is evident that the use of books is the first source of information for both groups. Considering the general framework of the Philosophy degree, the result confirms a common presumption. The relative low use of search engines and Internet directories could be considered somewhat surprising, as well as periodicals such as magazines, newsletters, series and yearbooks. As for Internet use, as is seen in this indicator, the use of *Google* and *Wikipedia* may be less common than is often suspected. The low use of magazines and other periodicals is particularly surprising in the second group, where the content invites the use of the daily press and current examples. This observation confirms the results obtained in view of generic competence 3, which considers the ability to apply knowledge into practice.

Generic competence 3: capacity for applying knowledge into practice

The third generic competence identified in the Tuning Project, that of applying knowledge into practice, seems to be confirmed more in the first group than in the second, if only the answers to the first question from the basic questionnaire are considered. This difference between the two groups is, at first sight, even more

surprising when one considers that the debates of the first group dealt with an excessively theoretical subject *(Ontology)*; while the second group discussed the contents of a practical subject *(Political Philosophy)*. The researcher could easily assume that due to the practical nature of political philosophy, the students recognized its applicability.

A possible explanation for this apparent discrepancy arises precisely from the subjects covered. If we consider that students who enroll in the *Ontology* course can do so with the prejudice that it is a subject detached from daily reality, the application of the debate is a tool that enables them a remarkable practical approach. Expectations in the *Political Philosophy* subject were already more directed towards a subject closer to reality and more specifically, to the nature of debate, that the possible application of knowledge into practice remained less flagrant. It should be stressed that this is a presumption of the researchers, which requires further confirmation by means of field research.

This is based on the observation that the second group, due to their trajectory, has greater previous experience in debates. The contribution of that experience could have influenced other results. In general, the debate could be considered as a more appropriate strategy for the initial levels, since a more significant contribution was observed in those students in relation to the three generic competences studied.

Conclusions

With the intention of establishing the contributions of the debate for the development of the 3 generic competences of the Tuning Project for Latin America (C6: Capacity for written and oral communication; C11: Capacity for searching, processing and analyzing information from diverse sources; C2: Capacity for applying knowledge into practice) a single study was carried out with two groups of students from the Philosophy degree, during the two semesters of the academic year 2016-2017.

Before pointing out the conclusion, we should remember the research's initial question: to what extent does debate, used as a methodological strategy, enable the development of three generic competences of the Tuning Project for Latin America in students in the curriculum of Philosophy at the Pontifical Catholic University in Ecuador? From the students' point of view, it would not contribute anything to the capacity for teamwork and commitment to quality. The results of the study support the hypothesis that concedes importance to the debate for the development of the selected generic competencies. Above all, the capacity for oral and written communication and the capacity for applying knowledge into practice have resulted as being favored. On the contrary, both groups did consider that the debate contributed to the developing the capacity for teamwork. However, these results cannot be considered definitive, due to the sample size and the need to fine tune the measuring instruments so as to achieve a greater level of internal validation. An experimental or quasi-experimental chronological series of studies is also recommended that analyzes the experimental group throughout their career, and which includes the control group as well.

As has been noted, the constitution of the analysis groups is marked by some peculiarities and differences. Because of the preliminary results obtained during this research, it is suggested to conduct longitudinal studies with other types of student groups, both from the basic levels as well as the more advanced levels; enrolled in similar subjects in terms of their content, as well as those with different content.

One of the most obvious objectives in the use of the debate as a teaching method consists in its contribution to the development of social skills: teamwork, interpersonal skills, or even oral expression. Therefore, it is surprising that this element has not stood out from the results obtained. In order to achieve better results during the implementation of the classroom debate, greater support should be provided to the social dimension of the didactic strategy in the classroom.

This study constitutes a first approach to the analysis for the use of a debate as a didactic strategy in the career of Philosophy. It must therefore recognize the need to fine-tune the measuring instruments according to the obtained and non-obtained results. For example, the incorporation of open-ended questions (2.3 and 5) in the "Basic Questionnaire for establishing the debate's contribution for the development of generic competencies", has led to a range of answers that are hard to classify. In addition, some questions may have led to ambiguous results due to errors of interpretation. For example, the request for the "skills in applying knowledge, developed during the debate, which will serve for the future," could be interpreted in different ways.

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Appendix

Appendix 1. Basic questionnaire for establishing the contribution of the debate for the development of generic competencies

PONTIFICAL CATHOLIC UNIVERSITY OF ECUADOR
ECCLESIASTICAL FACULTY OF PHILOSOPHICAL-TECHNOLOGICAL SCIENCES
SCHOOL OF PHILOSOPHY

STUDENT:…….

1. Generic competencies: From the following list of generic competencies, select 3 of the most important that you have developed while working on the debate (mark with an (mark with an "X")

List	Competencies	Option
1	Capacity for abstraction, analysis and synthesis	
2	Capacity for applying knowledge into practice	
3	Knowledge of the study area and the profession	
4	Capacity for oral and written communication	
5	Capacity for research	
6	Skills to search, process and analyze information from diverse sources	
7	Capacity for criticism and self-criticism	
8	Capacity for acting in new situations	
9	Capacity for identifying, posing and solving problems	
10	Capacity for teamwork	
11	Interpersonal skills	
12	Appreciation and respect for diversity and multiculturalism	
13	Commitment to quality	

2. Capacity for oral and written communication

2.1. Mention two personal difficulties that you experienced in verbally expressing your ideas during the debate

a) _____

b) _____

2.2. Mention two communication skills developed during the debate that may be of use in the future

a) _____

b) _____

3. Skills for searching, processing and analyzing information from diverse sources

3.1. The following resources were useful during the search for information (mark with an "X"):

List	Resources	Option
1	Books	
2	Recurrent publications: Journals, bulletins, series, annuals	

3	Scientific reports
4	Technical reports
5	Research programs
6	Congressional Acts
7	Doctoral thesis
8	Library or periodic publication catalogs.
9	Patents
10	Bibliographies
11	Official publications or from public authorities.
12	Indexes and summaries
13	Reference works: dictionaries, encyclopedias, monographs, treatises
14	Search engines and Internet directories
15	Specialized Internet data bases
16	Others

3.2. The following steps have been useful for information processing (mark with an "X"):

List	Steps	Option
1	Information review and organization	
2	Data classification and compiling	
3	Presentation through graphs and tables	

3.3. The following actions have helped for information analysis (mark with an "X"):

List	Actions	Option
1	Identifying the question(s) you want to answer	
2	Selecting the required information	
3	Ensuring the quality of the available data	
4	Establishing interrelationships between data: causal relationships or chains through which questions can be answered.	
5	Interpreting the data: drawing generalizable conclusions from the analyzed data.	
6	Making recommendations	

3.4. Select 2 difficulties that you experienced during your individual search, processing and analysis of information. (mark with an "X")

List	Difficulty	Option
1	Criteria for determining the importance of the material found	
2	Access to quality print material	
3	Access to quality virtual material	
4	Access to Spanish language material	

Difficulties during the information processing (mark with an "X")

List	Difficulty	Option
1	Lack of group organization for reviewing information	
2	Lack of group organization for organizing information	
3	Lack of group organization for classifying data	

4	Lack of group organization for data compilation	

Difficulties during information analysis (mark with an "X")

List	Difficulty	Option
1	Problems in identifying the question(s) to be answered	
2	Problems for selecting the required information	
3	Problems for assuring the quality of the available data	
4	Problems for establishing interrelationship between data	
5	Problems for interpreting the data	

4. Application

4.1. Identify 1 moment during the debate when you considered it was required to apply the knowledge developed during the present course (mark with an "X")

List	Moment	Option
1	Exposition 1	
2	Reply 1	
3	Rejoinder	

4.2. Identify 1 moment during the debate when you considered it was required to apply the knowledge acquired during your research before the debate (mark with an "X")

List	Moment	Option
1	Exposition 1	
2	Reply 1	
3	Rejoinder	

5. Prospective

Point out 1 communication skill, 1 research skill (related to the search, analysis processing of information) and 1 knowledge application skill, developed during the debate that may be of use in the future.

a) Communication skill: _____

b) Research skill: _____

c) Application skill: _____

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COMPARATIVE STUDY BETWEEN THE FLIPPED CLASSROOM METHODOLOGY AND THE TRADITIONAL METHODOLOGY IN SPANISH, ENGLISH AND MATHEMATICS CLASSES

Carolina María Schmeisser Arriaga
Universidad Internacional Iberoamericana, México
cschmeisser@boscotech.edu · https://orcid.org/0000-0003-2301-5734
José A. Medina-Talavera
Universidad Internacional Iberoamericana, Puerto Rico
jose.medina@unini.org · https://orcid.org/0000-0001-8404-2942

Abstract. The presence of new developments of technologies in the educational field requires an intensive intervention and adaptation toward the use of methodologies related to information technologies and communications (TICs) that contribute to the improvement of the students' academic performance. The objective of this article is to verify if there was a favorable impact on school performance with the use of the Inverted Classroom methodology in comparison with the use of the traditional methodology for the students of the ninth and tenth grade levels in the Spanish, English and Mathematics courses. On the other hand, in addition to goal was to offer a brief description of the concept of the Flipped Classroom with the review of some contributions derived from researchers as input for the students as well as the teachers. This study was of quantitative origin and with a quasi-experimental design. The sample was of 116 students divided into control group (65 students) and experimental group (51 students) of each subject. As an independent variable, the instruments applied were a pre-post test of academic achievement of each unit and the measurement of the results were analized using thet-Test statistical analysis system to verify its reliability. For the stadistical analysis, the IBM version 22 aplication was used. With respect to the results obtained, no statistically significant difference was observed between the pre-post tests before the experimental groups and control groups reasons that will be made known in the discussion and conclusion of the text. I have never seen this in a summary, it is normal to put them here.

Keywords: Technology, flipped classroom methodology, academic performance.

ESTUDIO COMPARATIVO ENTRE METODOLOGÍA DE AULA INVERTIDA Y METODOLOGÍA TRADICIONAL EN CLASES DE ESPAÑOL, INGLÉS Y MATEMÁTICAS

Resumen. La presencia de nuevos avances tecnológicos en el ámbito educativo, exigen una intensa intervención y adaptación hacia el uso de metodologías relacionadas con las tecnologías de la información y las comunicaciones (TICs) que contribuyan al mejoramiento del rendimiento académico de los estudiantes. El objetivo de este artículo fue comprobar si existió un impacto favorable en el rendimiento escolar con el uso de la metodología de Aula Invertida en comparación con el uso de la metodología tradicional en los estudiantes de los niveles noveno y décimo grado en los cursos de español, inglés y matemáticas. Por otro lado, también se intentó dar una breve descripción del concepto de Aula invertida con la revisión de algunas aportaciones de investigadores como aporte hacia el estudiante y al profesorado. Este estudio es de corte cuantitativo y con un diseño cuasi-experimental. La muestra fue de 116 estudiantes y se dividió en grupo control (grupos de 65 estudiantes) y grupo experimental (grupos de 51 estudiantes) de cada asignatura con un total de 116 estudiantes. Como variable independiente, los instrumentos aplicados fueron sobre el rendimiento académico de cada unidad (pruebas pre-post), cuyos resultados fueron analizados utilizando la prueba estadística t de Student para comprobar su fiabilidad. Para el análisis estadístico se utilizó la aplicación IBM SPSS Versión 22. Con respecto a los resultados obtenidos, no se observó una diferencia estadísticamente significativa entre las pruebas pre-post entre los grupos experimental y grupos control, motivos que se darán a conocer dentro de la discusión y conclusión del texto. Nunca he visto esto en un resumen, lo normal es que las pongan aquí.

Palabras claves: Tecnología, metodología de aula inversa, rendimiento escolar.

Introduction

Within this new society of technological developments, educational institutions face a continuous challenge and find themselves in an ongoing transformation. The new didactic rooms have been reflected in virtual learning centers. However, in these new environments, a higher reflection towards the use and incorporation of new technologies is necessary, where a critical integration of the what, why and for the what of its incorporation and use is formulated in order to obtain such skills as knowing how to read, write and create texts in multimedia formats, and knowing how to select, classify, process and transmit information integrated in multimedia formats in an oral, written, iconic and audiovisual manner (Cabero, 2007; Perez and Rodriguez, 2008; Bernete, 2009).

Today, with so many technological developments, routine and rote learning classes do not take advantage of the student's potential. Instead, teaching styles where students address problems both individually or in groups, where projects are used, and teachers start critical discussions by posing demanding questions to think analytically, are the tools in the teachers' hands to develop the student's intellectual capacity (García, 2005).

For students to successfully carry out their studies within the teaching-learning process, they must develop those specific skills that create learning strategies and techniques, among other type of complex cognitive mechanisms. In other words, to carry

out the different study tasks, the student must effectively acquire, process, retrieve and transfer information. In this way, the application of new learning strategies is of great help (Maquilón and Hernández, 2011).

Nowadays, classrooms have the tendency of becoming intermediate classrooms, also known as intelligent classrooms, because of the software they use to acquire, process and distribute information and knowledge in multimedia formats (written, graphic and video text, among others). Here, learning works as authentic learning laboratories (Andión, 2011).

In today's society, students do not need to be merely limited to a pre-stipulated curricular content that follows the traditional methodology (explain, listen, examine and point out), but must face a series of situations that used to happen less often. Some of these situations are the multiculturalism to which they are confronted, the interpretation of information, the capacity to work in groups or adapting to constant changes. All of them are linked to the need to develop creativity and follow the goal of educating reflective, critical and participative students, capable of solving the different situations that they must face in their daily life in a rational and reflective way (Achútegui, 2014).

The Concept of Flipped Classroom

The term Flipped Classroom is an approach attributed to professors Jonathan Bergmann and Aaron Sams.

Both Bergmann and Sams graduated from Biola University of Colorado in 2006 and both began teaching in *Woodland Park High School in Woodland Park*, Colorado, a high school of 950 students.

When they started working together, they recorded narrated PowerPoint content and distributed their lectures to help those students who missed their classes for whatever reason. They eventually realized that this system did not only help said students, but also those student's general study, thus managing to meet each one of their learning needs (Fortanet, González, Mira & López, 2013; García-Barrera, 2013; Tourón & Santiago, 2015; Bergmann & Sams, 2012).

Flipped Classroom, as its name suggests, enables the reversal of the traditional, face-to-face way of understanding, assimilating and comprehending theoretical content, switching to an education and support found outside of the classroom by means of diverse digital tools - materials created by the teacher and published online, written blogs, audio or video recordings (podcasts, videocasts, videoblogs, social media, etc.) or, simply, the Internet. Through this process, the student sets a level of reinforcement and understanding from within their own home, as a provider of knowledge that helps and guides the student during their competence acquisition. In this way, in-classroom time remains devoted to carrying out activities such as practical exercises, assignments, problem solving and/or questions, debates, small or large group work, which enables the student's peer assessment and self-assessment through cooperative learning (Fortanet et al., 2013; García-Barrera, 2013).

Flipped classroom switches the student's and teacher's roles. Educational acquisition is now conducted autonomously by the student and at the student's own pace based on the proposed teaching materials. The teaching staff consists, on one side, of the

design of activities, both for previous study and for classroom execution by using different techniques that fosters the student's active and cooperative learning; on the other hand, it consists of providing and conducting the teaching-learning process. In this way, the teaching staff's in-classroom activity with the students is enhanced, since general and specific competences, which are worked in tandem in this case, are difficult to achieve in a virtual context (Jordán, Pérez & Sanabria, 2014).

Being able to design activities, materials and lessons with ease for their contextual out-of-school use opens new opportunities for the students to adapt to the specific educational abilities, features, interests and needs that can appear for each student during their learning process. In this respect, flipping the classroom is a straightforward methodology that allows us to devote more time to assist the diversity existing in our classrooms, thus understanding the individual and interdividual differences of our students. Every student is different and have their own characteristics, abilities, competences, interests, motivations, previous knowledge, ideas and ideals, goals, dreams and learning styles (García-Barrera, 2013).

Another advantage, derived from the flipped method, is that the flipped classroom enables us to harness the time that the teaching staff usually devotes to creating classroom materials. The teacher can provide more customized attention to each student's needs to establish different learning itineraries according to the student's knowledge and abilities, provide different materials to each one, assign reasonable difficulty content or design different activities depending on their interests. Likewise, a flipped classroom could contribute in making the teaching staff's an individual or isolated one, as it can encourage collaborative work between teachers when implementing sessions, designing materials or exchanging activities, lessons and educational experiences (Tourón and Santiago, 2015).

Concerning the family, the flipped classroom pedagogical method enables collaborative transformation at home and makes participants of families by creating a bond and family engagement with their children. (García-Barrera, 2013).

The teacher, together with the parents, can diagnose the problem of their children when it comes to learning, together searching for the best interventions that can be implemented to achieve an effective and functional learning (Achútegui, 2014).

According to Jordán, Pérez and Sanabria (2014), the success of the flipped classroom depends on many factors, mainly because it requires the student´s direct and continuous collaboration, which is not always easy to achieve. Therefore, it is important to motivate them by clearly explaining the advantages that this methodology offers, showing them that, through their participation, the result will be more satisfactory, and the work done during the course will be more productive.

The 5 Main Components of a Flipped Classroom According to Bergmann and Sams (2012)

The flipped classroom sounds exhausting and we may think that it is too much work. Let´s describe this and identify the necessary relevant keys to make a flipped classroom work masterfully. There are 5 main components that should be known before starting the methodology, which are:

1.- Establishing clear learning objectives. That these objectives and outcomes be the ones desired by each student. Using state standards, national frameworks and your best professional judgment to determinate what you want your students to know and be able to do.

2.- Determining which of these objectives best achieves the goals and how you can apply direct and clear instructions to be better received. Creating a video that clearly shows our objectives. You need to have produced your own videos or use found others that will teach the content and the way you want to teach it. Remembering that, over time, teachers are increasingly implementing some kind of flipped classroom. Many of these teachers are making their videos available through the Internet, so that you do not need to produce your own videos.

3.- Ensuring the students access to the videos. When you have made or chosen a video, you need to make sure that your students have access to them. There are a variety of ways in which this can be done, such as posting a video online, keeping a file in the school server, and recording files on DVD. If the school has a technology department, working with them will be essential for it to work and seeing what will work best for your situation.

4.- Incorporating the learning activities that will be carried out in class. A packet of activities should be made for each unit, containing a follow-up of notes for both the videos and the experiments that the students will carry out, as well as all the suggested worksheets.

5.- Creating several types of evaluation material for the student to demonstrate their mastery in each learning objective, within each particular unit of study. This is more efficient and effective through the use of an evaluation system bank via a computer and test system. Moodle is one of the platforms that can be used to create and manage tests.

Methodology

One of the main reasons that motivated the researcher to carry out this study was to provide an alternative innovative technological methodology with the aim of improving the students' performance, facilitating their implication and motivation in the secondary school.

This study used a quantitative approach, supported by a quasi-experimental design.

As an independent variable, the flipped classroom teaching methodology was applied to the experimental group in the subjects of Spanish, English and mathematics. Within this dynamic, different communication methods facilitated by the use of ICTs were applied, such as: videos, electronic libraries, PowerPoint presentations, didactic web pages, Edmodo's virtual platform, and the ShowMe system to create virtual videos on the subject to be studied; resources that through their introduction, helped to reinforce and support learning.

The analysis of this variable, on the one hand, tried to identify if there was an academic improvement with the use of ICTs and the Flipped Classroom Methodology with

new didactic methodological strategies for a greater acquisition of knowledge and learning about students.

On the other hand, the academic performance was measured as a dependent variable, through the of academic tests before and after each unit (pre-tests and post-tests). This type of treatment was applied to the control and experimental groups in each study unit.

Similarly, a process of continuous and direct interaction between the researcher, the teaching staff and the students was carried out, which allowed for a systematic view of the individual and collaborative study phenomenon to be carried out immediately.

The sample taken from the population consisted of 116 students, representing 28.4% of the sample studied. 51 students (44%) comprised the experimental group (flipped classroom) and 65 students (56%), constituted the control group (traditional education) of this sample.

The selection criteria carried out in this research were that the intentional selection of the participants belonged to the same class levels (9th grade, 11th grade) and that both control and experimental classes were the same (Spanish 202 (Spanish level 2, English 406 (American Literature for level 2), Mathematics 201, (Geometry 1 for level 2). In the same way, students from the same educational institution were chosen, with both the teaching staff's and the students' participation being voluntary.

The groups were composed randomly in the following way: the third-year Spanish course at the secondary school had 21 students (18%). They comprised the experimental group which participated in the flipped classroom methodology, and 22 students (19%) comprised the control group, with a face-to-face class participation. In addition, the third-year English course was composed of 17 students (15%), who were the experimental group, with 25 students (22%) being the control group. Finally, the second-year Mathematics course was composed of 13 students (11%), who were the experimental group, with 18 students (16%) being the control group.

The experimental groups were given a short introduction with the students being explained why the teachers would apply the inverted methodology for two months as a test, and how the benefits of this innovative learning system would contribute to their performance improvement and, therefore, to their educational capacity. They were also informed that participation was voluntary.

Regarding the academic performance variable, Student t-test was applied for independent samples. The "t-test" is a statistical test to evaluate whether if two groups differ significantly from each other regarding their average score. For this purpose, hypotheses $H_0 1$ and $H_1 1$ were applied to contrast these hypotheses and to detect differences in the variables of the two groups.

Research Procedure

The research procedure phase lasted 10 weeks. It began on the 5 October 2016 and ended on the 15 December 2016.

Concerning the technological tools used in the classrooms, both teachers and students had access to the Internet, image projectors and a sound device for Apple TV.

Students were allowed to use smartphones, iPads and tablets during the required activities. In addition to that, each teacher had a laptop.

In the experimental classes, before beginning with the lessons, the teachers, in order to accredit the students' understanding, provided one or two orientation classes regarding the advantages of the flipped classroom methodology and the use of the Edmodo platform. During these classes, the students expressed their concerns and questions in general.

At the beginning of most of the classes, there was a reflection and general revision of the material exposed in the virtual platforms as a task, to be able to visualize the knowledge and the student's own learning with the sole purpose of being shared in class.

Regarding educational and technological tools, they used posters, the Internet, videos, a video projector, a computer, an iPad and an Apple TV.

As for the mechanisms applied in flipped classrooms, in order for the students to develop critical thinking, the acquisition of new concepts, autonomy, responsibility and learning skills, the Spanish, English and Mathematics teachers followed the procedure of incorporating educational videos created by them, and materials extracted from the Internet. To create a video, the teacher required between 1 or 2 hours, and each attached video lasted approximately between 7 and 12 minutes. These videos were displayed in a virtual platform (Edmodo and some web pages), in which readings, exercises, schedules and days for mentoring and tutoring were included.

Besides that, the teachers used Google Drive and Show Me to create audiovisual materials and upload the videos to Edmodo.

Additionally, the teaching staff employed interactive tech-based games similar to the game show "Jeopardy" as extracurricular activities.

Results

In this section, we analyzed the results obtained from the data collection of the designed instruments (pre and post-academic tests) that were carried out both at the beginning and at the end of each unit.

The main objective was to determine the effect of the flipped classroom methodology on student performance and to respond to the hypotheses $H_0 1$ and $H_1 1$ from the research based on the teaching-learning applied to control groups (traditional teaching) and the experimental groups (flipped classroom methodology) in the Spanish, English and Mathematics subjects. For said purpose, t-test based analyses were performed for independent samples.

Analysis were processed by means of the IBM, SPSS statistic program (version 22). The dependent variable was the academic achievement of the students in the Spanish, English and Mathematic courses. The independent variables were the traditional instruction methodologies and the flipped classroom instruction.

Hypotheses Formulated in the Study

The hypothesis formulated in this research guided the study to determine whether the results established a significant improvement or a significant impact on student academic achievement.

$H_0$1: There were no significant statistical differences in the average academic achievement between those students of Spanish, English and Mathematics who studied under the Flipped Classroom educational methodology against the group that studied under the Traditional Methodology.

$H_1$1: There were significant statistical; differences in the average academic achievements between those students of Spanish, English and Mathematic who studied under the Flipped Classroom educational methodology against the group that studied under the Traditional Methodology.

Results of academic performance improvement using comparisons between pre-post tests and related demonstrations.

Through Student t-test from independent samples, the differences between the pre-post tests for each group of flipped classroom instructions, and the traditional methodology class, were calculated in the two instructional modules for the subjects of Spanish, English and Mathematics. The results of the pre-post academic test from independent samples are reflected in the following results.

A Student t-test of related samples was conducted for the English subject (see Table 1) for students of the inverted instruction group. According to the results, no statistically significant difference was observed between the pre-test ($\bar{X}$= 17.15) and the post-test ($\bar{X}$ = 26.67) in module #1, t = -6.58, p < .001, this implies that that there is a statistically significant difference. There was an improvement in academic achievement. A similar situation was observed for the inverted instruction module #2 between the pre-test ($\bar{X}$ = 5.81) and the post-test ($\bar{X}$ = 41.67) for the instructional module #2 average. The results were significantly different, t = -14.41, p < .001, indicating that there is a significant difference between the ones who received the inverse methodology and the ones who learned with the traditional methodology.

Table 1
Spanish Class. Pre-Post Academic Tests (Flipped Classroom)

	n	$\bar{X}$	S	IC 95%	t	P
Module #1 Pre-Test	21	17.15	7.32			
Post-Test	21	26.67	4.48			
Difference		-9.52	6.63	(-12.54-6.51.)	-6.58	<001
Module #2 Pre-Test	21	5.81	6.04			
Post-Test	21	41.67	11.10			
Difference		35.86	11.40	(-41.05.-67.)	-14.41	<001

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability for rejecting hypothesis H_0.

A Student t-test of related samples was conducted for the English subject (see Table 2) for students of the inverted instruction group. According to the results, no statistically significant difference was observed between the pre-test ($\bar{X}$ = 15.47) and the post-test ($\bar{X}$ = 16.29) in module #1, t = -1.72, $p < .11$, this implies that H_0 is not rejected and that there is no significant statistical difference. A similar situation was observed for the inverted instruction module #2 between the pre-test ($\bar{X}$ = 15.94) and the post-test ($\bar{X}$ = 16.29) for the instructional module #2 average. No statistically significant difference was observed. The difference between both averages were 0.82, t = -.82, $p = .42$, which means that H_0 is not rejected and that there is no significant statistical difference.

Table 2

English Class. Pre-Post Academic Tests (Flipped Classroom)

	n	$\bar{X}$	S	IC 95%	t	P
Module #1						
Pre-Test	17	15.47	1.28			
Post-Test	17	16.29	1.93			
Difference	16	-.82	1.98	(-1.84, .19)	-1.72	.11
Module #2						
Pre-Test	17	15.94	1.75			
Post-Test	17	16.29	1.90			
Difference	16	-.35	1.77	(-1.26, .56)	-.82	.42

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability of rejecting hypothesis H_0.

A t-Student test for the related samples was carried out for the Mathematics subject (see Table 3) for the flipped classroom students. According to the results, no statistically significant difference between the pre-test ($\bar{X}$= 9.15) and the post-test ($\bar{X}$ = 11.00) in the module #1, t = -1.40, $p = .12$, was observed, meaning that H_0 is not rejected and that there is no significant statistical difference. However, in the instructional module #2, a statistically significant difference between the pre-test ($\bar{X}$ = 4.38) and the post-test was detected ($\bar{X}$ = 7.38). The difference between the averages was 3.00, t = -4.45, $p <.001$. This means that H_0 is turned down and that there is a significant statistical difference. H_1 is thus taken as being true. Only module 2 showed an improvement in academic achievement.

Table 3
Mathematics Class. Pre-Post Academic Tests (Flipped Classroom)

	n	$\bar{X}$	S	IC 95%	t	P
Module #1						
Pre-Test	13	9.15	3.98			
Post-Test	13	11.00	3.92			
Difference	12	-1.85	1.98	(-4.72, 1.03)	-1.40	.12
Module #2						
Pre-Test	13	4.38	2.10			
Post-Test	13	7.38	2.87			
Difference	12	-3.00	2.45	(-4.48, -1.52)	-4.45	< .001

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability of rejecting hypothesis H_0.

A Student t-test for related samples was carried out for the Spanish subject (see Table 4) for the traditional classroom students. According to the results, a statistically significant difference between the pre-test ($\bar{X}$= 17.14) and the post-test ($\bar{X}$ = 29.00) in module # 1, t = -10.25, p< .001 was observed. This means that H_0 is rejected and that there is a statistically significant difference. H_1 is thus taken as being true. There was an improvement in the academic achievement. In the same way, a significant statistical difference between the pre-test ($\bar{X}$ = 6.82) and the post-test ($\bar{X}$ = 46.27), t = -21.38, p <.001 was revealed in the module #2. This means that H_0 is rejected and that there is a significant statistical difference. H_1 is thus taken as being true. There was an improvement in the academic achievement.

Table 4
Spanish Class. Pre-Post Academic Tests (Traditional Methodology)

	n	$\bar{X}$	S	IC 95%	t	P
Module #1						
Pre-Test	22	17.14	6.65			
Post-Test	22	29.00	6.12			
Difference		-11.86	5.43	(-14.27, -9.45)	-10.25	<.001
Module #2						
Pre-Test	22	6.82	5.07			
Post-Test	22	46.27	8.75			
Difference		-39.45	8.66	(-44.29, -35.61)	-21.38	< .001

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability of rejecting hypothesis H_0.

A Student t-test of related samples was conducted for the English subject (see Table 5) for students of the traditional instruction group. According to the results, a statistically significant difference was observed between the pre-test ($\bar{X}$= 15.52) and the post-test ($\bar{X}$ = 17.60) in the module # 1, t = -9.03, p< .001. This implies that H_0 is rejected and that there is a statistically significant difference. H_1 is thus taken as being true. There was an

improvement in academic achievement. Likewise, in the instructional module #2, a statistically significant difference was detected between the pre-test ($\bar{X}$ = 15.52) and the post-test ($\bar{X}$ = 16.48). The difference between the average values was 3.00, t = -2.01, p = .003. This implies that H_0 is rejected and that there is a statistically significant difference. H_1 is thus taken as being true. There was an improvement in academic achievement.

Table 5
English Class. Pre-Post Academic Tests (Traditional Methodology)

	n	$\bar{X}$	S	IC 95%	t	P
Module #1						
Pre-Test	25	15.52	1.26			
Post-Test	25	17.60	2.08			
Difference		-2.08	1.15	(-2.56, -1.61)	-9.03	<.001
Module #2						
Pre-Test	25	15.52	1.05			
Post-Test	25	16.48	2.84			
Difference		96	2.39	(-1.95, 027)	-2.01	<.03

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability for rejecting hypothesis H_0.

A Student t-test of related samples was conducted for the English subject (see Table 6) for students of the traditional instruction group. According to the results, no statistically significant difference was observed between the pre-test ($\bar{X}$= 8.78) and the post-test ($\bar{X}$ = 12.28) in the module #1, t = -4.46, p < .001. This implies that H_0 is rejected and that there is a statistically significant difference. H_1 is thus taken as being true. There was an improvement in academic achievement. Likewise, in the instructional module #2, no statistically significant difference was detected between the pre-test ($\bar{X}$ = 4.56) and the post-test ($\bar{X}$ = 6.61). The difference between the average values was 3.00, t = -3.24, p = .002, this implies that H_0 is rejected and that there is a statistically significant difference. H_1 is thus taken as being true. There was an improvement in academic achievement.

Table 6
Mathematics Subject. Pre-Post Academic Tests (Traditional Methodology)

	n	$\bar{X}$	S	IC 95%	t	P
Module #1						
Pre-Test	18	8.78	2.94			
Post-Test	18	12.28	3.20			
Difference		-3.50	3.33	(-5.16, -1.84)	-4.46	<.001
Module #2						
Pre-Test	18	4.56	1.54			
Post-Test	18	6.61	3.07			
Difference		-2.06	2.69	(-3.40, .-72)	-3.24	<.002

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability for rejecting hypothesis H_0.

Results of the improvement comparison between the traditional methodology group and the flipped classroom methodology group.

A comparison was made to see if there was an improvement in the flipped classroom methodology classes compared to the traditional methodology group with the Student t-test from independent samples (see Table 7), in the Spanish classes to see if there was a significant difference. According to the results, no statistically significant difference was observed between the traditional class ($\bar{X}$= -11.86) and the flipped classroom ($\bar{X}$ = -9.52) in module #1, t = -1.26, p = .21. Likewise, in instructional module #2, no statistically significant difference was detected between the traditional class ($\bar{X}$ = -.39.45) and the flipped classroom ($\bar{X}$ = -36.76), t = -3.24, t = -.91, p = .37.

Table 7

Spanish Class. Traditional Methodology Vs. The Flipped Classroom Methodology

	n	$\bar{X}$	S	IC 95%	t	p
Module #1						
Traditional Class	22	-11.86	5.42			
Flipped Classroom	21	-9.52	6.63			
Difference		2.34	6.04	(-1.38, -6.06)	-1.26	.21
Module #2						
Traditional Class	22	-39.45	1.54			
Flipped Classroom	21	-36.76	10.64			
Difference		-2.71	7.05	(7.06, 1.63)	-.91	37

Note. Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability of rejecting hypothesis H_0.

A Student t-test comparison from independent samples for the traditional class and the flipped classroom in English classes (see Table 8) was carried out to see if there was a significant difference in grade improvement. According to the results, a statistically significant difference was observed between the traditional class ($\bar{X}$=-1.08) and the flipped classroom ($\bar{X}$ = -.82) in module #1, t = -2.60, p = .013. Likewise, in instructional module #2, no statistically significant difference was detected between the traditional class ($\bar{X}$ = -.96) and the flipped classroom ($\bar{X}$ = -35.29), t = -.89, p = .38.

Table 8
English Class. Traditional Methodology Vs. The Flipped Classroom Methodology

	n	$\bar{X}$	S	IC 95%	t	*p*
Module #1						
Traditional class	25	-1.08	1.15			
Flipped classroom	17	-.82	1.97			
Difference		1.25	1.53	(28, -2.23)	-2.60	.01
Module #2						
Traditional class	25	-.96	2.38			
Flipped classroom	17	-35.29	1.76			
Difference		.60.7	12.16	(-77, 2.00)	-.89	.38

Note. n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; *p* = Minimum probability of rejecting hypothesis H_0.

A Student t-test comparison from independent samples for the traditional class and the flipped classroom in English classes (see Table 9) was carried out to see if there was a significant difference in grade improvement. According to the results, no statistically significant difference was observed between the traditional class ($\bar{X}$= -3.5) and the flipped classroom ($\bar{X}$=. -1.84) in module #1, t = -1.14, *p* = .26. Likewise, in instructional module #2, no statistically significant difference was detected between the traditional class ($\bar{X}$ = -2.06) and the flipped classroom ($\bar{X}$ = -3.00), t = -.1.00, *p* = .33.

Table 9
Mathematics Class. Traditional Methodology vs. the Flipped Methodology

	n	$\bar{X}$	S	IC 95%	t	P
Module #1						
Traditional class	18	-3.5	3.32			
Flipped classroom	13	-1.84	1.75			
Difference	1.65	1.98	(-1.31, 4.	-1.14	26	
Module #2						
Traditional class	18	-2.06	2.68			
Flipped classroom	13	-3.00	2.44			
Difference		-.94	2.59	(- 2.87, .99)	1.00	.33

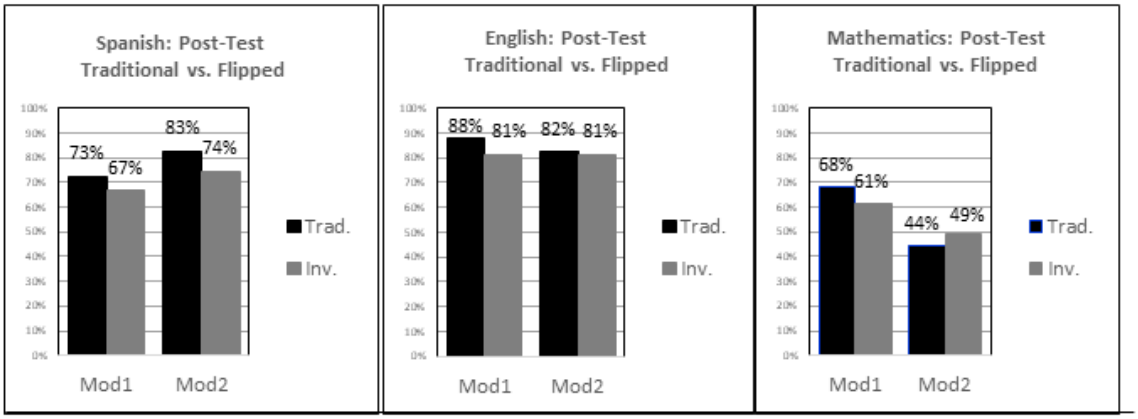
Note: n = Sample size; $\bar{X}$ = Average; S = Standard deviation; IC = Interval of confidence at 95% for the difference; t = Test statistic; p = Minimum probability of rejecting hypothesis H_0.

Results of the comparison between the traditional methodology group and the flipped classroom methodology group.

Concerning the last 3 comparison tables, between the control and experimental groups, the traditional methodology group reflected a greater improvement than the flipped classroom methodology group, but not with a greater statistical significance. This tells us that the research hypothesis of the null H_0 hypothesis is correct, (there is no difference between the improvement averages in the samples from the independent variable).

The only case in which the traditional methodology group had greater improvement than the statistically significant flipped classroom methodology group was in the English module #1 (p = .01) from Table 14. That is, in said case, the difference between the averages would be expected within the observed range of 1-.01 = 99% of the samples.

The only module in which the flipped classroom methodology group had greater improvement than the traditional methodology group was in the Mathematics module #2, but with no statistically significant difference yet (p = .33), Table 15. That is, in said case, the difference between the averages would be expected within the observed range of 1-.33



= 67% of the samples.

In conclusion, these results indicate that there were no statistically significant differences in rejecting the null hypothesis (H_0), i.e. there were no differences between the two teaching methods for both the Spanish, English and Mathematics groups.

Interpretation of Post-Test Results (Academic Test)

As can be seen in Figures 1, 2 and 3, a relevant information for the study carried out by the researcher after obtaining the results was that the use of the traditional methodology had a relatively significant impact on the Spanish classes (unit 2, module 2) and Mathematics classes (unit 1, module 1) after the post-test; no significant difference was detected in the groups of the English classes (control group and experimental group). In general, no statistically significant differences were observed between the groups.

Figure 1. Results for the mean differences between the subjects of Spanish, English, and Mathematics regarding academic performance.

$H_0$1 Hypothesis: There were no significant statistical differences in the average academic performance between students of Spanish, English and Mathematics who studied under the flipped classroom educational methodology against the group that studied under the Traditional Methodology.

Although the experimental group from Spanish at first felt less comfortable with the use of the flipped classroom and presented some obstacles to its full and complete realization, (the tools and technology necessary for its outcome), some students showed interest in continuing with this educational system, arguing that carrying out their activities

at their own pace, provided them with greater focus on the subject and a greater reinforcement of the material studied in class.

It is necessary to indicate that the researcher-teacher was monitoring and observing the entire research process in a meticulous way, so as to be able to determine a possible stable methodological intervention in the future.

Discussion and Conclusions

In sum, the fundamental conclusion that can be drawn from this work, is that, although the intervention of the flipped classroom methodology did not have a great impact on academic performance based on pre-post knowledge test scores, we could see that both the Mathematics and Spanish classes had a slight improvement in grades under the flipped classroom classes. This satisfies the researcher and encourages the diffusion of the use of innovative methods to be used by the teaching staff, establishing a continuous practice of educational search that serves as a basis for carrying out an improvement in school performance.

It is important to point out that the context and circumstances in which the research has been carried out establish limits between results and reality, since the flipped classroom model was implemented through a doctoral thesis, being the first approach to the study of low academic performance and could have been affected by a lack of motivation in students.

Limitations

A more detailed and in-depth analysis of the research could not be done since time was limited, only two months were available.

The sample size was too small, and the object of study only focused on one group of students from one school and one gender, being all males. This does not allow the results to be generalizable or extrapolated to analogous groups from other institutions in Los Angeles, California. However, the instruments used, and the results obtained, can be used and applied to other research with similar populations.

Due to the magnitude of the work involved in the preparation of classes by the teaching staff, the time necessary prior to instructing both students and teachers to develop more effectively and efficiently their teaching-learning lessons was not obtained.

The lack of Internet bandwidth (Wi-Fi), as well as the availability of You Tube didactic material were limiting factors during the class day.

The considerable number of extracurricular activities (sports, projects, meetings, among others) minimized (through fatigue and tiredness) the students' complete study development.

The lack of technological knowledge for a flipped classroom from the teachers, plus the time dedicated to the creation of new videos and programs, hindered the design of more didactic alternatives for the students.

Continuity Proposal

After obtaining the results, the researcher recommends the following:

To continue with new studies in technological strategies within the campus to improve school performance.

To propose workplace training in new methodologies that allows for greater stimulation in the students and the teaching staff.

To propose a follow-up and training to the teachers, according to the subject that they teach, so that in this way, they may attribute to the improvement of teaching-learning, both of the institution and the students, and thus halt the problem presented in the classrooms.

Provide greater follow-up on the teaching staff to verify the use of the methodology with the use of the new teaching-learning technologies and strategies used for teaching these subjects.

Greater participation in communication, in both the classroom and the virtual environment with regards to the students' studies.

The research considered this study as being the beginning for developing an improvement in the research of applied inverse-classroom with the support of new surveys, programs, activities and didactic methodologies based on competencies. In turn, it suggests carrying out new surveys, not only to the student body, but to the teaching staff as well, so as to identify the training and skills required for educational technologies to present a training program in both the classroom and the virtual environment and so establish a structured model based on the previously identified needs for the teaching staff so as to establish a standard teaching-learning model within the academic institution.

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EMOTIONAL INTELLIGENCE AS A FEATURE AND ITS INFLUENCE ON THE DISPOSITIONAL OPTIMISM OF PROFESSIONALS WHO WORK IN CARE CENTERS SPECIALIZING ON INTELLECTUALLY DISABLED PEOPLE

Óscar Gavín Chocano
Universidad de Jaén, España
mkimagine@yahoo.es · https://orcid.org/0000-0002-1975-5003

Abstract. The field of professionals who on a daily basis exercise their activity with people with intellectual disability can sometimes be influenced by some aspects linked with the exercise of the profession, given the activity's characteristic and the direct contact with the environment. The effects of Emotional Intelligence and the quality of the acquired emotional skills could prove to be beneficial for improved personal development and a higher dispositional optimism. In the present study, an attempt is made to analyse the relationship between these concepts on intellectual disability healthcare professionals from the province of Jaen, Spain. The sample of the study is composed of 59 subjects (n=59), with a mean age of 38.59 years (±10.359). In order to obtain said information, the following tools have been used: the Emotional Quotient Inventory (EQi-C) and the Life Orientation Test-Revised (LOT-R). There are significant relationships between some of the dimensions of the considered instruments ($p<.05$), with statistically significant differences between the Emotional Intelligence dimensions and the gender variable ($p<.05$). The regression analysis confirms the positive association between Emotional Intelligence (intrapersonal) and dispositional optimism. A discussion will be addressed around the results obtained from previously carried out researches on healthcare professionals who work with intellectual disability, concluding with a rigorous analysis of the different propositions that tackle the Emotional Intelligence, and dispositional optimism, and consequently the different practical strategies for starting specific programs of improvement.

Keywords: Intellectual disability, emotional intelligence, dispositional optimism.

INTELIGENCIA EMOCIONAL RASGO Y SU INFLUENCIA SOBRE EL OPTIMISMO DISPOSICIONAL EN PROFESIONALES DE CENTROS DE ATENCIÓN A PERSONAS CON DISCAPACIDAD INTELECTUAL

Resumen. El ámbito de profesionales que ejercen a diario su actividad con personas con discapacidad intelectual a menudo puede verse influenciado por aspectos relacionados con el ejercicio de su profesión, dadas las características de su actividad y el contacto directo con el entorno. Los efectos de la inteligencia emocional y la calidad de competencias emocionales adquiridas pueden resultar beneficiosos para un mejor desarrollo personal y laboral y un mayor optimismo disposicional. El presente estudio pretende analizar la relación entre estos conceptos en profesionales de atención a personas con discapacidad intelectual de la provincia de Jaén, (España). La muestra está compuesta por 59 sujetos (n=59), con una edad media de 38.59 años (±10.359). Para la obtención de información se utilizan como instrumentos: Emotional Quotient inventory (EQi-C) y Life Orientation Test Revised (LOT-R). Existen relaciones significativas entre algunas de las dimensiones de los instrumentos considerados ($p<.05$) y hay diferencias significativas a nivel estadístico entre las dimensiones de inteligencia emocional y la variable género ($p<.05$). El análisis de regresión confirma la asociación positiva entre inteligencia emocional (intrapersonal) con el optimismo disposicional. Se abordará una discusión de los resultados con investigaciones previas realizadas en profesionales de atención a personas con discapacidad intelectual, concluyendo con un análisis riguroso sobre las diferentes propuestas que abordan la inteligencia emocional, y optimismo disposicional, y por extensión las diferentes estrategias prácticas en la puesta en marcha de programas específicos de mejora.

Palabras clave: Discapacidad intelectual, inteligencia emocional, optimismo disposicional.

Introduction

In most cases, the care of people with Intellectual Disabilities (hereon ID) creates a clear emotional and affective involvement. This involvement significantly transcends in the personal and professional development of all who work with people that have specific support needs, which can have a negative impact on their psychological well-being and dispositional optimism (Nespereira-Campuzano & Vázquez-Campo, 2017).

In the professional healthcare field, the main indicators of psychosocial risk (emotional exhaustion, stress, burnout, etc.) are especially visible due to the affective relationship and intensity in the care for people with ID (Extremera, Durán & Rey, 2005).

Several studies have identified the variables that influence how professionals perceive and respond to different demands when exercising their profession, among which are, in addition to organizational factors, the acquired personal and emotional skills (Gabel-Shemueli, Peralta-Roldán, Paiva-Lozano & Aguirre-Huarcaya, 2012).

Nowadays, the prevention of psychosocial risks related to the welfare work activity is gaining special interest as a protective factor (Medina, Medina, Gauna, Molfino, Merino, 2017). This is why it is important to acquire emotional skills as a service strategy, both on the part of the professional who performs the work, as well as the person with ID as the recipient of the service.

In this regard, Emotional Intelligence (hereon EI) is postulated as one of the most important variables for the success of organizations, thus promoting greater

emotional regulation, positive attitude and greater efficiency in works of welfare (López-Fernández, 2015).

Emotional intelligence

The concept of EI was developed by Salovey & Mayer (1990) as the ability to perceive and understand our own emotions and that of other people. This was done by linking aspects related to personal and social well-being (Pulido-Acosta & Herrera-Clavero, 2018), by enabling an adaptive use to the individual's developmental context (Alonso-Ferres, Berrocal de Luna & Jiménez-Sánchez, 2018; Molero, Pantoja-Vallejo & Galiano-Carrión, 2017) and which in turn would provide the individual with the right tools capable of effectively solving problems (Fernández-Berrocal & Ruíz-Aranda, 2008), and would be able to assess its life-long process with new tools to advance its research and methodology (Fernández-Berrocal, Extremera, Palomera, Ruiz-Aranda & Salguero, 2018).

From its conceptualization until now, many studies have verified the potential of EI as a predictor for positive emotional states, as well as for their projection into the individual's professional development (Casas, Del Rey & Ortega-Ruíz, 2016; Mayer, Salovey & Caruso, 2004). Similarly, the evidences gathered concerning its development, implementation and assessment method have diversified its content by means of two differentiated models, which originally synthetized complementary features (López-Cassá, Pérez-Escoda & Alegre, 2018): *ability model* and *trait model* (Mayer, Roberts & Barsade, 2008).

The *ability model* focuses its content in the ability to perceive and understand emotions for the sake of better cognitive processing through four basic abilities: perceiving emotions, using emotions, understanding emotions and managing emotions (Fernández-Berrocal et al., 2018; Mayer & Salovey, 1997).

On the other hand, the *trait model* combines cognitive abilities with personality features and different emotional and affective attributes, linked to the individual's ability to tackle the different requirements and pressure in an adaptive manner (Cazalla-Luna & Molero, 2018). These must be assessed by self-report tools, such as the *Bar-On Emotional Quotient Inventory* (Bar-On, 2006).

This paper bases its content on the *trait model*, defined as 'a constellation of behavioral dispositions and self-perceptions concerning the individual's abilities to recognize and use information with emotional baggage' (Petrides & Furham, 2001, p. 427), which includes concepts such as empathy, assertiveness, life satisfaction and dispositional optimism considering that the different variables composing it (interpersonal, adaptability, stress management and intrapersonal) are essential for determining the predisposition for optimism in professionals that work with persons with ID (see figure 1), although not every ability composing the construct comes into play in the same way (Fiori & Vesely- Maillefer, 2017).

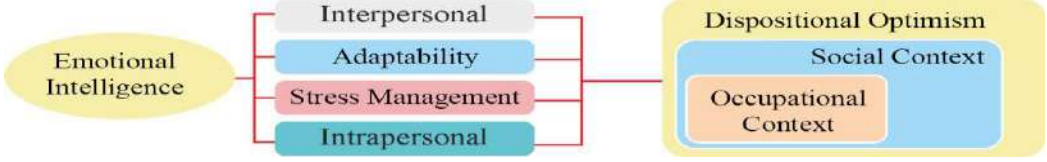

Figure 1. Relationship between Emotional Intelligence and Dispositional Optimism (Own creation).

Evidence from prior studies confirm the impact of EI on the reduction of fatigue and on job aptitude (Miao, Humphrey & Qian, 2016). Other studies have proved the link between EI and social abilities as a strategy for confronting job stress (Wang, Xie, Cui, 2016). Some findings revealed a connection between EI and reduced symptoms of fatigue (Mérida-López & Extremera, 2017), which enables us to adopt a more balanced productive and social approach (Ortega-Navas 2014).

Dispositional Optimism

Another concept that has acquired special interest in recent years as a variable that improves psychological well-being is dispositional optimism (Knowlden, Hackman & Sharma, 2016; Vizoso-Gómez & Arias-Gundín, 2018). This concept is understood as the willingness to have positive expectations about what will happen in the future (Carver & Scheier, 2014; Carver, Sheier & Segerstrom, 2010; Pedrosa, Celis-Atenas, Suarez-Alvarez, García-Cueto & Muñiz, 2015), and a generalized tendency to find new ways of completing the traditional perspective of clinical psychology in relation to deficit (Hinz, Sander, Glaesmer, Brähler, Zenger, Hilbert, & Kocalevent, 2017). From a theoretical perspective, optimism and pessimism have been addressed from different approaches (Ortíz, Gómez-Perez, Cancino & Barrera-Herrera, 2016). A pessimistic attitude will have a negative impact on the achievement of proposed goals and objectives (Carver & Scheier, 2014), while an optimistic explanatory style associates negative events with external causes (Peterson & Seligman, 1984). On the one hand, optimistic people have been observed as having high levels of EI (Extremera, Durán & Rey, 2007). Similarly, dispositional optimism has been associated with self-efficacy in job performance (Feldman & Kubota, 2015) and low levels of anxiety (Pino, Peñate, Fumero, Bethencourt & Zambrano, 2016). Several studies also point that dispositional optimism reduces the influence of job stressors (Villardefrancos, Santiago, Castro, Ache & Otero-López, 2012). On the other hand, pessimistic people focus their negative emotions as an internal, stable cause that covers all of life's circumstances (Anadón-Revuelta, 2006).

This research focuses its content on the theoretical model of dispositional optimism developed by Carver & Scheier (2014), using *The Life Orientation Test* -LOT- by Scheier & Carver (1985) and its abbreviated version called *Life Orientation Test-Revised* -LOT-R- (Scheier, Carver, & Bridges, 1994) as evaluation instruments. It was the most used test for evaluating dispositional optimism, having proven its psychometric consistency in multiple studies, including the dimensional structure and temporal stability test (Saboonchi, Petersson, Alexanderson, Brandstrom & Wennman-Larsen, 2016).

The study's relevance emphasizes the need of evidencing the relationship between EI and dispositional optimism in professionals who work with people with ID, a work based on the person's respect, dignity and autonomy as holistic, paying special attention to the different affections established in the professional development of the healthcare activity (López-Fernández, 2015), and belonging to different direct-care centers within the Jaén province (Spain): the *Agencia de Servicios Sociales y Dependencia* (Social Services and Dependence Agency) in Jaén province, the *Asociación de Personas con Discapacidad Intelectual* AINPER (Association of Intellectually Disabled People) in Linares, the *Asociación de Familiares y Amigos de Personas con Discapacidad Intelectual* (Association of Family and Friends of Intellectually Disabled People) AFAMP in Bailén, the *Asociación de Personas con*

Discapacidad (Association of People with Disabilites) in Jódar, the *Centro Ocupacional de Discapacitados* (People with Disabilites Occupational Center) in Bailén, the *Centro de Atención a Minusválidos Psíquicos* (Attention Center to Mentally Disabled People) CAMP in Linares, and the *I.E.S. Medina Rivilla* (Medina Rivilla High School) in Bailén.

After carrying out a systematic review of recent publications, the ***objectives*** of this general study are as follows: *(A)* Establish the EI scores, characteristics and dispositional optimism of the participants; *(b)* Analyze the statistically significant differences between the sociodemographic variables (age and gender) of each characteristic, dispositional optimism and EI; *(c)* Know which variables from each of those considered predicts a greater dispositional optimism.

Method

The study design is principally based on an empiric, non-experimental research, using associative and descriptive research strategies (Ato, López and Benavente, 2013). Transversal measures have been developed from selected criteria, using comparative and predictive strategies.

Population and Sample

To carry out this study, informing a certain number of centers and professionals was considered essential with the aim of getting a considerably representative sample. The participants (*n*=59) were professionals who cared for ID people throughout the different centers in the Jaén province (Spain): 48 women who represent 81.40% and 11 men who represent 18.60%. The age range fluctuates between 19 and 57 years old, with a mean of 38.59 (±10.359). A non-probabilistic causal or accidental sample has been used (Latorre, Del Rincón and Arnal, 2003).

Instruments

In order to collect relevant information, two socio-demographic variables related to gender and age have been included. The purpose was to obtain information from the sample and analyze the existence of significant differences according to said variables. The characteristics and psychometric properties of the evaluation instruments used are detailed below:

Emotional Quotient Inventory. The Emotional Quotient Inventory -EQi-C- (López-Zafra, Pulido & Berrios, 2014) was used to evaluate the EI. It is an adaptation into Spanish (short version) of the EQ-i (Bar-On, 1997) and its version for young people and adolescents EQ-i: YV (Bar-On & Parker, 2000). The test offers information on emotional skills and their links to other variables, regarding four factors (interpersonal, adaptability, stress management and intrapersonal) for the study of trait EI, with internal consistency values reported by its authors from α=.78, α=.75, α=.73 and α=.70 for each subscale. In our sample, the reliability of the scores for each subscale of the EQi-C were α=.74, α=0.80, α=.82 and α=.67, respectively.

Life Orientation Test Revised (LOT-R). The Spanish version of the Life Orientation Test Revised -LOT-R- (Remor, Amorós & Carrobles, 2006) was used to evaluate dispositional optimism. A scale composed of six items that measure the degree of optimism ("*I am always optimistic about my future*") or pessimism ("*I never expect things to go my way*") of subjects. The response format is a five-point Likert scale. It consists of 10 items, 3 of which evaluate the degree of the subject's, 3 that evaluate the

degree of the subject's pessimism and 4 remaining others that do not compute in the questionnaire's correction to avoid its automatic response. Subjects will indicate the degree of agreement or disagreement on each statement, from 0 (strongly disagree) to 4 (strongly agree). It is expected that the higher the valuation, the higher the dispositional optimism. The internal consistency reported by its authors is α=.78; where the reliability of the scores (internal consistency) in our study is α=.70.

Data analysis and collection procedure

The study was carried put with the informed consent of each participant. The subjects were duly informed of the process to be followed, and the confidentiality and anonymity of the collected information. Each of the tests was performed individually. All the information related to the purpose of the study was sent to the people in charge of the centers, together with a presentation letter informing of the study's general objectives. The questionnaires were delivered following the established criteria in the following order; the *Emotional Quotient Inventory* (EQi-C), followed by the *Life Orientation Test Revised* (LOT-R). In spite of opting for this sequence, this order does not vary the expected result.

Of the data collected, descriptive statistics (mean and standard deviations) were obtained, after which the reliability of the scores for each instrument (internal consistency, α Cronbach) and the correlation between the resulting scores in each of the dimensions were analyzed. An analysis of the mean differences according to gender (Student t test of mean difference for independent tests) was then performed; for the age variable (expressed in three intervals) an ANOVA was used. The assumptions of data independence, normality and homoscedasticity, as well as the assumption of additivity in the ANOVA (Gil-Pascual, 2015) were verified in all cases, in addition to reporting the size of the effect. Lastly, to explore the predictive value of the EI variables on dispositional optimism, a step-by-step regression study was conducted. In all cases, a 95% confidence level (significance $p<.05$) was used, using SPSS 22.0 (IBM, Chicago, IL) to obtain the results of the tests indicated above.

Results

The results obtained are reported below, describing and analyzing each of the previously established objectives in order to respond to them.

Relationship between dispositional optimism and emotional intelligence

We present Pearson's correlation matrix scores, descriptive statistics (means and typical deviations), reliability analysis (Cronbach's alpha) for each of the dimensions raised in the study (see Table 1), giving continuity to the mention made in the instruments section.

Table 1
Internal consistencies, means, typical deviations and Pearson correlations on the dispositional optimism and emotional intelligence variables.

Variable	*α*	M *(TD)*	OPT	INTER	ADAP	STR	INTRA
OPT	.70	22.75(±3.71)		.07	-.02	-.38**	.41**
INTER	.74	28.08(±4.02)		-	.54**	-.38**	.18
ADAP	.80	18.37(±3.65)			-	-.05	-.08
STR	.82	15.36(±5.72)				-	-.68**
INTRA	.67	32.05(±5.88)					-

Note: (1) Mean = M, Typical deviation = TD, Dispositional optimism = OPT, Interpersonal Emotional Intelligence = INTER, Adaptability = ADAP, Stress management = STR, Intrapersonal= INTRA (2) *=p<.05; **= p<.01.

Statistically significant relations have been found between the EI EQi-C (stress management) instrument and dispositional optimism (inversely; r=-.38; p<.01), and also between EI EQi-C (intrapersonal) and dispositional optimism (positively; r=.41; p<.01). Likewise, there are statistically significant relationships between some of the EI EQi-C interpersonal and adaptability dimensions (r=.54; p<.01), interpersonal and stress management (inversely, r=-.38; p<.01), stress management and intrapersonal (inversely; r=-.68; p<.01). The reliability of the scores for those instruments that were considered have good internal consistency between .67 and .82.

Differences according to socio-demographic variables

A Student t-test for independent samples was conducted so as to analyze the difference according to gender (see Table 2). The results indicate that there are only statistically significant differences between the two dimensions of the EQi-C (stress management and intrapersonal) and gender (t_{56}=3.60; p=.01), (t_{56}=-2.46; p=.05), respectively, with the stress management sub-scale for men and the intrapersonal sub-scale for women being higher.

No statistically significant differences (t_{56}<2.0; p>.05 ns) have been found in the other variables for EI EQi-C (interpersonal and adaptability). There are also no statistically significant differences in dispositional optimism according to gender (t_{56}<2.0; p>.05 ns).

The effect size is high for the stress management sub-scale (d>8) and medium for the interpersonal sub-scale (d>6), regarding the classical Cohen criteria (1988).

Table 2
Mean differences based on gender (Student t test).

Variables		Men (*n*=11) *M (TD)*	Women (*n*=48) *M (TD)*	$t_{(56)}$	*p*	Effect *(d)*
LOT-R	OPT	23.55 (±2.97)	22.56 (±3.87)	.789	.252	.286
EQi-C	INTER	26.09 (±3.53)	28.54 (±4.02)	-1.861	.923	.647
	ADAP	18.27 (±3.95)	18.40 (±3.63)	-.100	.829	.034
	STR	20.45 (±8.28)	14.19 (±4.27)	3.600	.001**	.950
	INTRA	28.27 (±7.51)	32.92 (±5.15)	-2.463	.050*	.722

Note: (1) Dispositional Optimism = OPT, Interpersonal Emotional Intelligence = INTER, Adaptability = ADAP, Stress Management = STR, Intrapersonal= INTRA (2) The size of the statistical effect is expressed with Cohen's value.

Three intervals (19-31 years, 32-44 years and 45-57 years) were determined in order to analyze the differences according to age, with an ANOVA being performed (see Table 3). No statistically significant differences were found according to age in the dispositional optimism dimension ($F_{(2.56)}$=.029; p>.05 ns).

There are also no statistically significant differences according to age in the variables for the EI EQi-C (interpersonal, adaptability, stress management and intrapersonal) ($F_{(2.56)}$=.978; p>.05 ns), ($F_{(2.56)}$=2.119; p>.05 ns), ($F_{(2.56)}$< 2.125; p>.05 ns) and ($F_{(2.56)}$<.735; p>.05 ns), respectively. The *a posteriori* test performed (Tukey's HSD) reports that there are no statistically significant differences in any of the intervals, with the effect size being small in all cases (η^2).

Table 3
Mean differences based on age (ANOVA)

Variable	19-31 years *M (TD)*	32-44 years *M (TD)*	45-57 years *M (TD)*	$F_{(2,56)}$	*p*	Effect η^2
OPT	22.65 (±3.48)	22.90 (±3.85)	22.67 (±4.00)	.029	.971	.001
EIINTER	29.10 (±4.24)	27.67 (±3.46)	27.44 (±4.36)	.978	.383	.034
EIADAP	18.90 (±3.82)	17.10 (±3.49)	19.28 (±3.42)	2.119	.130	.070
EISTR	13.80 (±4.84)	15.00 (±4.31)	17.50 (±7.46)	2.125	.129	.071
EIINTRA	32.45 (±5.37)	32.86 (±5.25)	30.67 (±7.08)	.735	.484	.026

Note: (1) Dispositional optimism = OPT, Interpersonal Emotional Intelligence = EIINTER, Adaptability = EIADAP, Stress Management = EISTR, Intrapersonal= EIINTRA. (2) *=p<.05; **= p<.01. (3) The size of the statistical effect is expressed with the value of the Eta squared (η2).

Regression study

In order to analyze the variables that predict dispositional optimism (LOT-R), considered a criterion variable, a linear regression analysis has been performed through the successive steps method. Each of the dimensions of the EI EQi-C (interpersonal, adaptability, stress management and intrapersonal) and the LOT-R dispositional

optimism (see Table 4) were established as predictive variables. Thus, this assured that no multicollinearity problem existed (tolerance values <.20; *VIF* >4.00).

Table 4
Lineal regression analysis (successive steps), criteria variable: dispositional variable

Criteria Variable	***R***	***R^2***	***R^2 Corrected***	***F***	**Predictable variables**	***Beta***	***t***
Dispositional variables	.414	.171	.157	11.780			
					EIINTRA	.261	3.432**

Note: (1) Dispositional optimism = OPT, Interpersonal Emotional Intelligence = EIINTER, Adaptability = EIADAP, Stress management = EISTR, Intrapersonal= EIINTRA. (2) **=p<.01.

The model's summary indicates that only one of the EI EQi-C intrapersonal (IEINTRA) dimensions is included; the remaining three dimensions of the EQi-C (interpersonal -IEINTER-, adaptability -ADAP- and stress management -EISTR-) are excluded.

The dimension included in the regression explains 15.7% of the variance (R=.414; R^2 corrected=.171; *F*=11.780 *p*<.01), with a significant t-value being the best predictor of dispositional optimism.

Discussions and Conclusions

The influence of such concepts as EI and their development through the emotional skills acquired in professional contexts of direct care with people in situations of vulnerability, especially the collective of people with ID, is indisputable today. The main objective of the study was to analyze the effects of EI trait levels on the optimism disposition in professionals who care for people with DI, taking into account the influence of these variables on aspects related to the physical and psychological well-being of the individuals in carrying out their occupational activity. (Llorent & Ruíz-Calzado, 2016).

Regarding the first objective, the results obtained show evidence of the relationship between EI (stress management and intrapersonal) and dispositional optimism. There is data that agree with previous studies where EI and disposition to optimism were related to other variables such as anxiety and the moods of the individual (Pavez, Mena & Vera-Villarroel, 2012). A possible explanation would be determined by the implementation of emotional competencies acquired in negative stressful situations through adaptive behaviors (Medina-Gómez & Gil-Ibáñez, 2017). On the other hand, people who experience positive emotions have an optimal affective state that significantly affects the development of their daily activity (Pavez, Mena & Vera-Villarroel, 2012).

Regarding the second objective, which is to analyze the relationship between gender and the instruments considered, we found significant differences in EI stress management. The scores obtained are higher in men than in women. This data contradicts other studies where no significant gender differences were found (Cazalla-

Luna & Molero, 2018; Cazalla-Luna, Ortega-Álvarez & Molero, 2015). Other studies do find significant differences between men and women (Fortes-Vilaltella, Oriol, Filella-Guiu, Del Arco & Soldevila, 2013). We also found significant differences between intrapersonal EI and gender. In this case, women had higher EI scores, coinciding with other studies (Fernández-Berrocal et al., 2018). Women obtain higher scores in aspects related to understanding and expressing emotions (López-Zafra et al., 2014). It is possible that such differences are determined by the number of participants. The inconsistency of the results is conditioned by this circumstance. It should be taken into account that the majority of the sample is made up of women, which may have repercussions on this result.

With regard to dispositional optimism based on gender, we have found no significant differences. The data are higher in men than in women, coinciding with the evidence obtained by other authors (Cazalla-Luna & Molero, 2016). Other studies report higher levels of exhaustion, stress and pessimism in men than in women, contradicting the study (Llorent & Ruiz-Calzado, 2016).

As for the relationship between the sociodemographic variables of age and EI, we found no significant differences. The highest scores were in EI adaptability and stress management for older subjects and interpersonal EI for younger subjects. Older participants, their professional experience and direct contact with their dependents, are likely to be a determining factor in their work. However, other studies point to the attitude of older subjects as depersonalized in professional treatment. Daily work with people for a long time might result in the loss of perspective on the problems and concerns of others within the work environment (Llorent & Ruíz-Calzado, 2016). The differences found experience a logical progressive rise as age increases (Pulido-Acosta & Herrera-Clavero, 2018).

On the other hand, regarding regression analysis, the results show that one of the variables of the EI trait is predictive of dispositional optimism. The predictive pattern reports that intrapersonal EI came into the regression model to explain disposition to optimism. This may be due to the fact that optimistic people are able to face the day-to-day development of their professional activity because they trust in their emotional coping capacity (Carver & Scheier, 2014). This data is relevant and provides evidence on the value of dispositional optimism to manage levels of emotional exhaustion caused by work stressors (Vizoso-Gómez, Arias-Gundín, 2018).

In summary, the results obtained in this study are relevant for several reasons. First of all, it replicates other studies carried out in professionals caring for people with ID who evaluate the levels of EI trait and dispositional optimism. Secondly, it provides evidence of the relationship between EI and dispositional optimism. To conclude with the predictive validity of the EI trait over the dispositional optimism (Cazalla-Luna & Molero, 2018).

The practical relevance of this research points to the importance of EI, especially some of its dimensions, in the perception established by professionals who directly care for people with ID, the degree of their acquired emotional skills and the optimism level regarding the development of their professional activity.

Within the limitations of the study, we can point out the limited number of subjects in the sample, made up of different professionals from different centers within the province of *Jaén* (Spain). It is an aspect to be taken into account for future research. Another limitation to take into account is the amplitude of female professionals with respect to males. This data is significant when it is stated that the great majority of

professionals who practice their profession with people with ID are women. Consequently, caution must be exercised regarding the significance of this data in the general population.

The practical implications of this study are relevant for the good professional development of those who work in ID care centers. Since only one of the EI variable (intrapersonal) was the predictor of a greater level of dispositional optimism, it would be precise to plan actions within the occupational context through training programs in socio-emotional skills. The acquisition of emotional competence will specifically result as fundamental for the skills to carry out the profession, to help in the prevention and in facing those everyday aspects of the services provided, by attenuating wear and stress. In this sense, the practical consequences of this study underline the need for implementing emotional training programs to not only improve personal aspects, but professional ones so as to offer better quality care to people with ID.

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DYNAMIC CAPABILITIES: AN EMPIRICAL ANALYSIS OF ITS NATURE

Javier Alonso Mendoza Betin
j.mendozabetin@hotmail.com · https://orcid.org/0000-0002-8355-8581

Abstract. The article is part of the doctoral dissertation called "Dynamic Capabilities and Financial Profitability: A Study Proposal for the Analysis of Basic Sanitation Companies of Cartagena, Colombia". It explores and explains the nature of the dynamic capabilities and their relationship with Financial Profitability in 96 firms that are composed of 304 members of the management team. An exploratory and transversal methodological strategy is presented, based on the data collection instruments of the researcher, those that were validated by experts to answer the central question: What and how is the ecosystem of the dynamic capacities of absorption, learning, innovation, adaptation and business resilience, in reciprocity to financial profitability? In another aspect, the scientific, theoretical and empirical literary body related to research in the last 5 years has been examined, based on which the current perspectives of the biosphere of competences, procedural and eclectic and integrated of the construct and the knowledge vacuum are exposed. Finally, it is concluded that the idiosyncrasy of the dynamic capacities is eclectic and integrated, and that the dynamic capacities of innovation and resilience increase the economic performance of the organizations, the foregoing as a result of the contrast of the hypotheses by means of structural equations.

Keywords: dynamic capabilities, nature, structural equations

CAPACIDADES DINAMICAS: UN ANALISIS EMPIRICO DE SU NATURALEZA

Resumen. El artículo hace parte de la disertación doctoral denominada “Capacidades Dinámicas y Rentabilidad Financiera: Una Propuesta de Estudio para el Análisis de las Empresas de Saneamiento Básico de Cartagena, Colombia”. Explora determinar y explicar la naturaleza de las capacidades dinámicas y su relación con la rentabilidad financiera en 96 firmas que se componen de 304 miembros del equipo gerencial, se presenta una estrategia metodológica exploratoria y transversal, basada en instrumentos de recogida de

datos propios del investigador, los que fueron validados por expertos para responder la pregunta central: ¿Cuál y como es el ecosistema de las capacidades dinámicas de absorción, aprendizaje, innovación, adaptación y resiliencia empresarial, en reciprocidad a la rentabilidad financiera? En otra vertiente, se ha examinado el cuerpo literario científico, teórico y empírico relativo a investigaciones en los últimos 5 años; con base en lo cual se exponen las perspectivas actuales de la biosfera de competencias, procesal y ecléctica e integrada del constructo y el vacío de conocimiento. Finalmente, se concluye que el carácter de las capacidades dinámicas es ecléctica e integrada, y que las capacidades dinámicas de innovación y resiliencia acrecientan el rendimiento económico de las organizaciones, lo anterior como resultado del contraste de las hipótesis mediante ecuaciones estructurales.

Palabras clave: capacidades dinámicas, naturalezas, ecuaciones estructurales

Introduction

The nature of dynamic capabilities (DC) is a topic of great controversy in the field of business strategy. This controversy comes from the difficulty of reaching an agreement on the correct way of conceptualizing them, either as competencies or as processes. However, as a result of the research carried out, the author adds a new element to this dispute by introducing a third category that he calls eclectic. DC have common characteristics, but they also show the divergences that arise from the idiosyncrasies of different organizations. This entails the need to develop a positive analysis that enables the analytical generalization of its findings in the theory of dynamic capabilities.

Due to the aforementioned, it is appropriate to determine and study (based on empirical data) the different ecosystems in which such capabilities are developed, as well as the dynamics of their formation within companies, in order to later analyze their consequences. However, given the abstract nature of the construct, it was decided to examine the competences and processes of absorption, learning, innovation, adaptation, entrepreneurial resilience and financial profitability under a yardstick. The question that sustained this research emerges from this, formulated in the following terms: What and how is the nature of the previously mentioned dynamic capabilities, in reciprocity to financial profitability, in the context of the basic sanitation companies of the city of Cartagena, Colombia?

In order to answer this question, the theoretical model shown in Figure 1 will be compared using the structural equations technique. This technique will be used to observe, highlight and contrast the ecosystem of the designated DC, including the recognition of other types of dynamic capabilities.

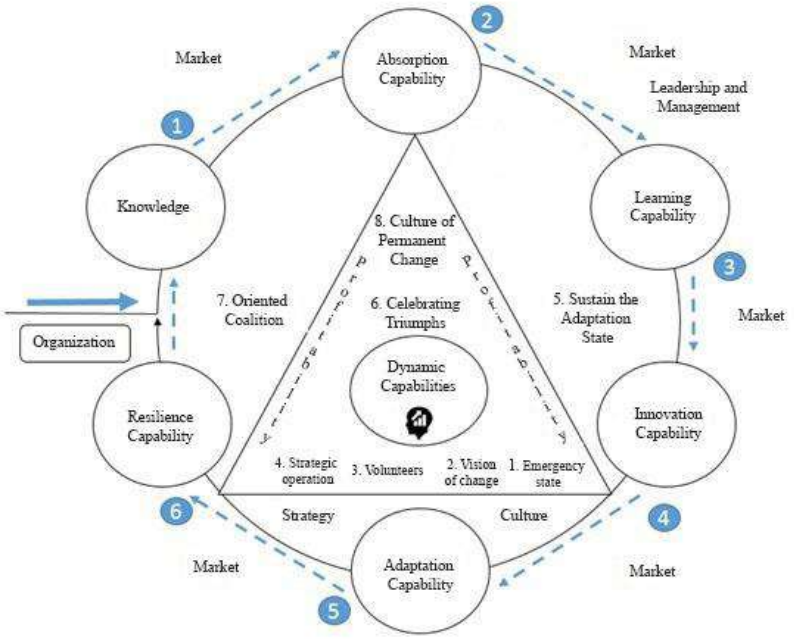

Figure 1. Approximation of the proposed Theoretical Model

Note: Taken from Cepeda-Carrion et al., (2015), Garzón et al., (2012), Garzón (2015), Kotter (2015) and Prezelj & Doerfel (2017)

The theoretical discussion will be divided into a series of sections, beginning with the existing separation that the DC habitats address: Competencies and Processes, as still supported by Carattoli (2013), Salvato & Rerup (2017) and Teece (2018), and a third stance that will be proposed and explained called Eclectic and Integrated, which corresponds with the author's cognoscente approach. Despite the theoretical scope around DC habitats, little has been researched about the effects of dynamic capabilities of absorption, learning, innovation, adaptation and entrepreneurial resilience, analyzed as a unified and holistic body of transformation on financial profitability. On the contrary, there are examinations disjointed from the relationship with the variables, especially as the dynamic capabilities of absorption, learning and innovation increase the value of the firm and, in consequence, the company's financial profitability (Cepeda-Carrion et al., 2015; Diaz-Delgado et al., 2016; Pérez de Armas et al., 2016). Hence the novelty, convenience and relevance of filling the knowledge gap on the nature of the dynamic capacities, adopted in these six variables.

Perspectives on the Nature of Dynamic Capabilities

The revision of the literary corpus and previous relevant researches linked to DC enabled formulating the problem of establishing their environment, which is still widely studied but in a separate way. On the one hand, Flatten, Adams & Brettel (2015), Helfat and Martin (2014), Helfat & Martin (2015), Helfat and Peteraf (2014), Teece (2014; 2018), and Trehan and Easterby-Smith (2017) stand out for considering them as competences. On the other hand, Delgado et al., (2016), Felin et al., (2015), Perez de Armas et al., (2016), Salvato & Rerup (2017), Swoboda and Olejnik (2016) and Winter (2013) identify them as routines. Lastly, Garzón (2015), Mendoza (2013) and Salvato & Vassolo (2017) consider them a theoretical eclectic combination of abilities and processes.

Consequently, and with the aim of contributing to the hypothetical generality of dynamic capabilities, the adoption of the eclectic-integrated trend justifies the execution of this numeric exploration, adapted to the Atlantic Colombian region, specifically in the area of basic sanitation in the city of Cartagena. This circumstance explains the innovative spirit and pertinence of this research, which compares the dissimilar perspectives originated from commendable studies - yet carried out individually and not in an aggregate manner - about absorption, learning and innovation dynamic capabilities, in addition to the economic performance of resources, thus verifying a model composed by the six noted variables.

Method

Accordingly, the aim is to explore the habitat of absorption, learning, innovation, adaptation and resilience dynamic capabilities as a whole, depending on financial profitability under a methodical, cross-sectional design. Generally speaking, and according to literary scrutiny, the link between absorption, learning and innovation capabilities, as well as financial performance, is positive and pertinent (Diaz-Delgado et al., 2016). Although this link does exist, it is not clear how the five capabilities will work together in order to achieve the desired financial performance, or how their conjoint analysis will enable determining the ecosystem of DC. In other words: How are the mentioned capabilities organized inside companies in order to increase financial profitability? Considering the preceding literature and the lack of agreement, the following hypotheses are proposed:

H1 hypothesis: The dynamic capabilities of absorption, learning, innovation, adaptation and company resilience, concerning financial profitability, are eclectic and comprehensive.

Ha1 hypothesis: The dynamic capabilities of absorption, learning, innovation, adaptation and company resilience, concerning financial profitability, are competence-related.

Ha2 hypothesis: The dynamic capabilities of absorption, learning, innovation, adaptation and company resilience, concerning financial profitability, are process-related.

From another angle, the design of the data collection instruments and the selection of the sample were made according to the following cycles: the elements and constructs were reviewed by three experts during the pilot stage. Each one was asked to review the reagents and confirm that the items were appropriate and adequate for the analysis units of Cartagena's basic sanitation sector, organizations mainly oriented at providing services. But even so, they would evaluate if the three designed surveys would answer the central question of the empirical work. In the second phase, the instrument was tested using a non-probabilistic sample of 29 members of the management team from 10 companies in the aforementioned sector. The collected data was evaluated, with some adjustments made to the mechanisms.

After the pilot study, the instruments for collecting information were personally administered to the subjects of the management team from the productive chains. The data collection procedure was based on Dillman's Total Design Method (1978,2007), who recommends making four contacts with the participants from the fieldwork through: (A) a

brief letter explaining the study, (b) an email attaching the survey, (c) a thank-you note, and (d) the survey application itself. Dillman also agrees that an additional special contact with the participants must be established after the final approach so as to improve the response rate. As a result, each respondent was sent a Thank You email.

The initial sample included 304 analysis units from 96 companies that according to the Chamber of Commerce of Cartagena (2017) comprise this industry. As 18 respondents were on vacation or with work permits, a total of 286 respondents were included in the practical exam. 40 instruments were eliminated in total, because they were incomplete in their processing; that is, responses with more than 50 percent of lost data were excluded. The final sample was made of 249 members from the management team that, based on Lloret-Segura et al., (2014), MacCallum (2003), is considered appropriate in the application of the structural equation technique.

Observations

Without prejudice to the use of the surveys, the observations were also used, which accessed the direct information of the study, in which the interactions and decisions of the companies' executives related to the research also took place, which in the end will facilitate access to the groups' cultural knowledge (Bonilla-Castro and Rodríguez-Sehk, 2005), and ultimately strengthen the research conclusions. Regarding the distinction of the businesses and their management groups, the author visited the physical places, offices, and meeting places.

Common Method Variance

To minimize the potential effects of common method variance, Podsakoff et al. (2003) recommends including procedural controls in instrument design. Therefore, before administrating the surveys, form controls were instituted to decrease the probability of the common method variance. In addition, after data collection, statistical control was used to assess the presence of the common method variance. In fact, Harman's single factor test was carried out and the results indicated that no single constituent represented the majority of the variance (the largest factor represented 34% of the variance).

Independent Variables

Absorption Capability

The dynamic absorption capability was evaluated using an *ad hoc* scale created under the following hypothetical dimensions, harmonizing with Arbussa and Coenders (2007) and Cepeda-Carrion et al., (2015): 1. Integrated and adaptive competencies and processes for the identification, capture and appropriation of external but relevant information located in the market. 2. Interaction with the environment based on practices and qualities to proceed in the search for critical data associated with alliances and R&D networks. 3. Skills and instructions for acquiring knowledge similar to cooperation and relations with other companies. 4. Methods and experiences in renewing resources and capabilities through strategic relationships with independent or complementary firms. A total of twenty factors measured absorption capability.

Learning Capability

The dynamic learning capability was measured by scrutinizing a scale established by the researcher based on the theoretical extensions suggested by Garzón et al., (2012). This metric contains three dimensions appropriate for the current study: 1. Exploitation and generation of knowledge through the subjects of the business; individual, group, organizational and inter-organizational. 2. Share discernment through competencies, processes, formal and informal structure, communities of practice, lessons learned, organizational memory and tolerance of error. 3. Corporate culture as a consequence of the system, organizational climate and communications. A total of thirteen items evaluated the learning capability.

Innovation Capability

The dynamic innovation capability was tested using four hypothetical dimensions proposed by Garzón and Ibarra (2013a,b); Garzón (2015) and Molina and Munuera (2008): The first one was designated; Radical innovations to reach new businesses and new markets. The following; Gradual, evolutionary or incremental innovations, similar to product innovations. The third one was named as; Architectural innovations, linking process innovations, organizational and marketing changes. And fourth; Conceptual innovation, with which all the above could be reinvented. A total of ten observable variables were created to measure the innovation capability.

Adaptation Capability

The dynamic adaptation capability was measured using four theoretical lengths proposed by Kotter (2015) and Ohmae (2012): 1. Adaptive processes and competences to adjust the structure and hierarchy of the company. 2. Routines and attributes to change the agency structure and the company's corporate management. 3. Dual strategic-operational adaptation capability; an organic and structural environment and a dynamic network designed to compete. 4. Practices and experiences for the company to evolve into other markets and businesses. Six elements were organized in order to assess the adaptation capability.

Entrepreneurial Resilience Capability

The dynamic resilience capability was calculated by examining a scale established by the researcher based on the theoretical extensions suggested by García-Merino et al., (2015), Mendoza (2013), Prezelj & Doerfel (2017) and Somsing & Belbaly (2017). It was measured by five dimensions suitable for the study: 1. Competencies and processes to be flexible and continuously adapt to new unexpected situations in the short term. 2. Activities and skills to productively and meaningfully respond to unexpected changes in the short and medium term. 3. Skills and routines to recover from adverse events in the short and medium term. 4. Experiments and experiences to maintain the functions and results under tension in the medium term. 5. Creative risk management, crisis and business continuity. A total of ten factors measured the resilience capability.

Dependent Variable

Financial Profitability

Performance was first thought to be measured using the ratios of profitability on assets and patrimony proposed by Tham and Vélez-Pareja (2004) and Tham et al., (2010). However, since most of the organizations in the study are private, data could not be collected directly from participants, and as a result, relative elements were designed in response to the refusal of managers to disclose detailed performance data. Respondents were then asked whether each of the analysis capabilities increased financial profitability over the past 3 years.

Variables Control

The size of the firm can have an important influence on the development of dynamic capabilities, and these in the increase of profitability, since larger companies have more resources and could have more configured skills and routines (Gulati, 1999). In such a case, the examination was controlled by surveying the number of employees prior to the practical scrutiny.

Results

It was stipulated that the best and most convenient methodological technique were those of structural equations, given its capacity to estimate and simultaneously adjust multiple relationships and associations, incorporate latent and observable variables, and explain the random measurement error of latent variants (Medsker et al., 1994). A two-step strategy was used to study the data, including validation of measurement scales and confirmatory factor analysis in the first part. In the second part, the model and the estimation of parameters for the final pattern according to the natures of DC were identified, evaluated and adjusted. The results of both cycles are presented below.

Measurement model

The different scales of the principles in the instruments defined of the Linkert type, were admitted in the following assumptions: uni-dimensionality with the SPSS, compound reability, AVG, discriminant validity by means of Gaskin plugin (2017), which were inserted to the program AMOS version 23. In addition, the Confirmatory Factorial Analysis (CFA) was also carried out with the same computer development, while some adjusted goodness-of-fit indicators were calculated for the first reflective model as proposed (Gaskin & Lim, 2016 and Marsh et al, 2014). Among those that stand out is the Root Mean Square Residual (RMR), an index that must be less than 0.08, and other indicators such as AGFI, NFI and RFI found as well, which reinforce being greater than 0.9 (Cupani, 2012).

It was then decided to create a database with all the items of the three surveys, which yielded 747 records and were differentiated by an identification variable with three options for each, which represent a DC. The following procedures were then taken into account in order to develop the initial SEM: Unweighted least squares solution (ULS); however, the Maximum Verisimilitude (ML) process was circumscribed in order to take

advantage of the index modifications (IM) that could not be obtained with the ULS method, coinciding with Holgado-Tello, et al., (2010) and Ximénez & García (2005).

For the above, the measurement pilot was constructed for the exogenous variables corresponding to the dynamic capacities of absorption, learning, innovation, adaptation and entrepreneurial resilience. Later, they were related to the financial profitability in an inaugural SEM model using the Path graph or of paths technique, one for each of the previously mentioned tactics. In addition, standardized estimators were also deduced, suggesting that they should be around 0.7 (Escobedo et al., 2016). However, at this point in the process, the lowest appraisers were identified in order to eliminate some observable variables and improve the SEM model. Likewise, modification metrics (MI) were applied to decrease the chi-square value. Therefore, the substantial criterion was to exclude items with high MI values (Morin et al., 2013). This process was carried out so as to regenerate the reliability and validity objectives in the AFC, and the goodness-of-fit goals (Marsh et *al.*, 2014).

As a strategy, the previously defined model was assumed, based on the theory and taking into account that the archetype were identified; this is to say, that the degrees of freedom were larger than the unity. After adjusting the first prototype, it was re-specified towards two new patterns, considering the modification indexes and supported by the literary corpus. Another thing which was added to the joint procedures was the construction of standardized tables, non-normalized coefficients tables and the goodness-of-fit indexes tables. Lastly, the hypotheses association was verified by considering the P values of the non-adjusted coefficients. The derivations of the nascent archetypes showed that a six-factor latent guide gave an approximated adjustment of the data in Figure 2.

([747, n = 249]; CFI = 0.558; RMSEA = 0.168; TLI = 0.539) and in Figure 3 3 ([747, n = 249]; AGFI = 0.983; RMR = 0.121; NFI = 0.984).

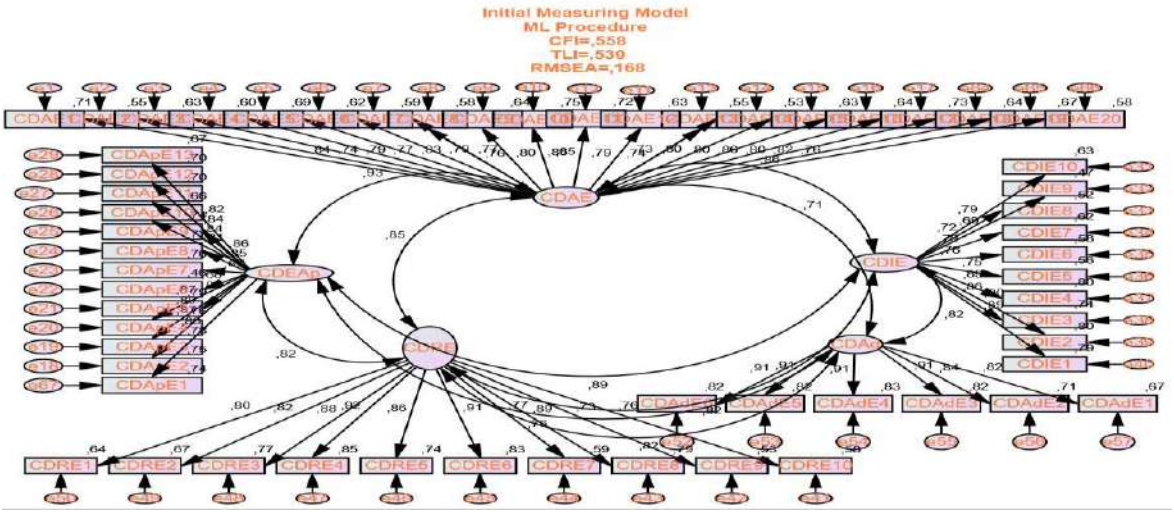

Figure 2. Path Graph model of the Maximum Likelihood (ML) initial dynamic capabilities procedures for general measurement

Note: Taken from our own calculations based on SSPS and AMOS (2018)

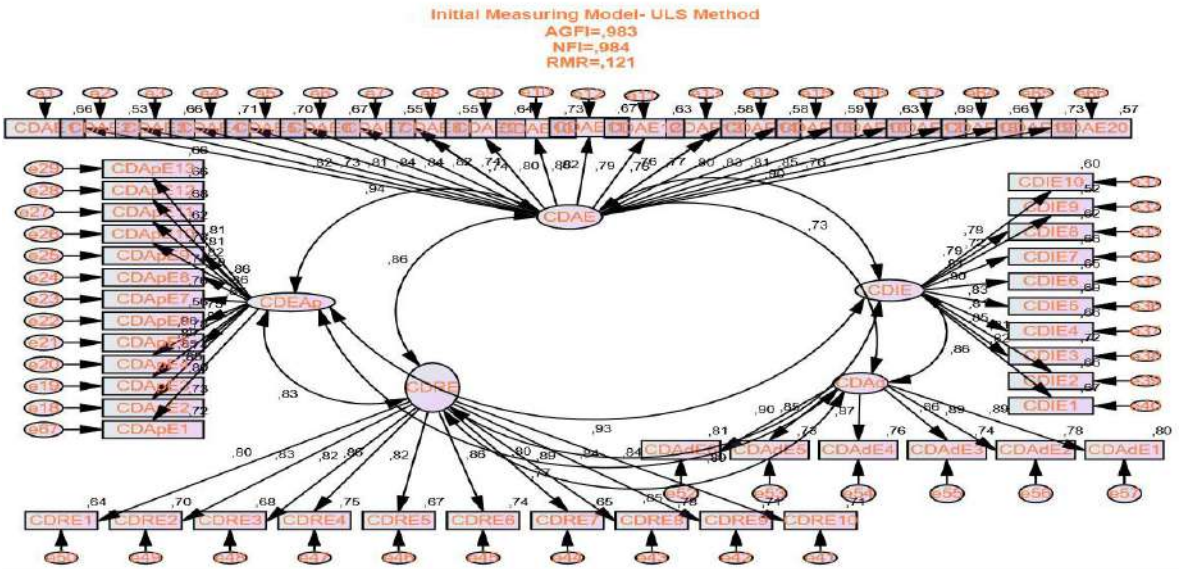

Figure 3. Path Graph model of the Unweighted Least Square Solutions (ULS) initial dynamic capabilities procedures for general measurement

Note: Taken from our own data processing based on SSPS and AMOS (2018)

Structural Model

After the confirmatory analysis, the general adjustment indexes of the hypothetic signal were considered, with the measurements showing the adequate adjustment ([747, n = 249] = NFI = 0.967; AGFI = 0,964; RMR = 0,168). Given the adequate appearance, the hypothesis were analyzed.

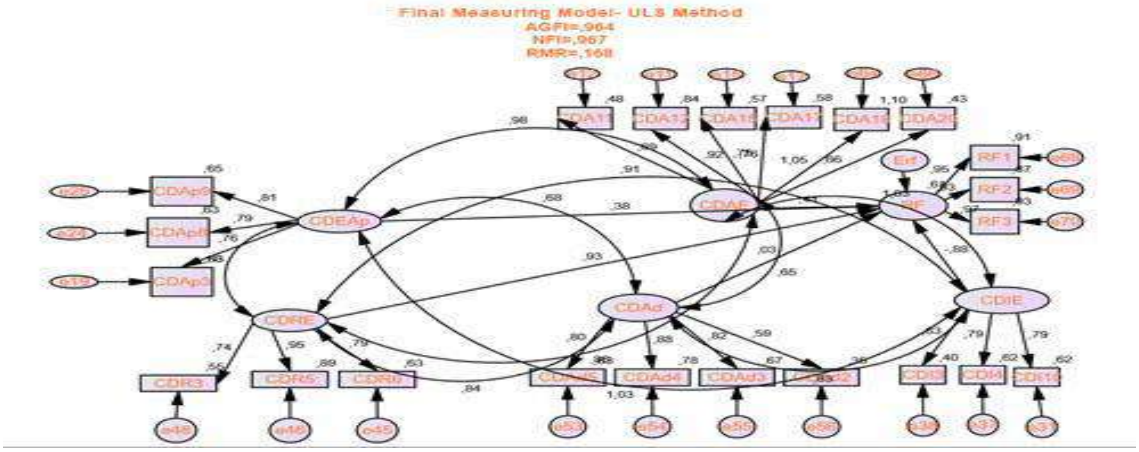

Figure 4. Path Graph model of the SEM final procedure (ULS) by characteristics

Note: Taken from our own calculations based on SSPS and AMOS (2018)

Estimating Parameters in the Final Model Depending on their Characteristics

Keeping the hypothesis in account, the standardized coefficients related to the characteristics of the dynamic capabilities were presented.

Table 1
Factorial loads from the characteristics of dynamic capabilities

Endogenous Variable	Relationship	Exogenous Variables	Eclectic	Processes	Competencies
RF	<---	CDAE	0.137	-0.019	-0121
RF	<---	CDEAp	-0.24	0.877	-0.002
RF	<---	CDRE	0.489	0.579	-0.098
RF	<---	CDAdE	-0.02	0.239	0.013
RF	<---	CDIE	0.659	-0.792	0.081

Note: Taken from our own measurements valued in SSPS and AMOS (2018)

It was discovered that the most influential coefficients in the RF are Eclectic, the CDIE with a value of 0.659 and a CDRE equal to 0.489, the other dynamic capacities did not take part in the RF. On the other hand, the capacities in processes, which were largely between the RF are in the following order; CDEA with a coefficient of 0.877, followed by CDRE equal to 0.579; CDIE showed an opposite but high relation (-0.792). Finally, in terms of competences, no variables with an incidence in the RF was obtained. A key aspect for identifying if the DC values help to explain RF values depending on the environments is by fixing the determining coefficients (R2). The discovered results are presented below..

Table 2
Determination coefficients for the definitive RF endogenous variable model based on the characteristics of the dynamic capabilities

Endogenous Variable	Eclectic	Processes	Competencies
RF	0.753	0.587	0.012
RF3	0.787	0.918	0.948
RF2	0.812	0.87	0.88
RF1	0.932	0.918	0.879

Note: Taken from our own calculations estimated on SSPS and AMOS (2018)

R2 in the Financial Profitability (RF) indicates that the entire model, this is to say, taking into account the dynamic capacities, explains its performance; therefore, the higher it is, the more explanatory it is. The rest of values are what the RF reveals to their respective observable variables. Taking into account the corollaries, all figures are suitable and, as a consequence, we can say that the RF presents changes in its respective items very well.

The contrast of the hypothesis showed how the RF was better explained by the Eclectic environment. R2 revealed that 75.3% of the changes in the RF are declared by the

dynamic capabilities, while the DC of a procedural nature expressed the changes in RF at 58.7%. In both cases they were suitable values, with the Eclectic model being much better. With regards to Competence, the RF was not shown in a good way, with its R2 being almost null.

Given the adequate procedure, ULS, the program does not present the values of P; however, with the previously shown indicators and the above table, we could see how the dynamic capabilities of a competitive nature do not properly contribute at exposing the Financial Profitability (RF). With respect to Processes, only the CDAE capability does not significantly declare the RF. The one with the highest direct participation is CDEAp, with an estimator of 0.877, followed by CDRE with 0.579 and CDAd with a coefficient of 0.239. It is notable that the CDIE dynamic capability presented an inverse relationship with the RF, for which the value was -0.792.

The RF in the Eclectic environment showed that the CDIE is more relevant (0.659), followed by the CDRE (0.489) to a lesser extent, but with the CDAE (0.137) being influential, with the CDEAp having a significant inverse concordance (-0.24), and the CDAd definitely not being statistically revealing in intervening in the RF, because of its minimal coefficient of -0.02. In order to meet some hypothesis about the dynamic but integrated capabilities, i.e., not separately analyzed, the following table was created with the values of P, given that in this case, it could be conducted based on an ML procedure.

Table 3
Non-standardized coefficients for the definitive RF endogenous variable model based on the characteristics of the dynamic capabilities

Endogenous Variable	Relationship	Exogenous Variables	Estimate	S.E.	C.R.	P
RF	<---	CDAE	-0.598	0.893	-0.67	0.503
RF	<---	CDEAp	0.35	0.693	0.506	0.613
RF	<---	CDRE	0.493	0.186	2.648	0.008
RF	<---	CDAd	0.127	0.083	1.522	0.128
RF	<---	CDIE	0.546	0.12	4.538	***

Note: Taken from our metrics determined in SSPS and AMOS (2018)

It was discovered that the P figure is statistically explanatory for the capabilities of resilience (0.008) and innovation (***). This implied that they had a positive RF. The others, in response to the transactions of P, are higher than 0.05. In such a circumstance, they are not responsible for the RF.

Discussion and Conclusions

Positive exploratory research on the nature of the dynamic capabilities showed that it is eclectic, coinciding with the hypothetical positions of Garzón (2015), Mendoza (2013) and Salvato & Vassolo (2017), although only in relation of the variants; dynamic

capabilities of innovation and entrepreneurial resilience regarding Return on Equity. Cepeda-Carrion et al., (2015), Diaz-Delgado et al., (2016) and Perez de Armas et al., (2016) argue that the dynamic capabilities of takeover, learning and innovation as a result of Return on Equity increase the value of large firms, which is contrary to the context of micro and SME corporations where this fieldwork was conducted. Notwithstanding the foregoing, the *ad hoc* findings confirm, in a limited way, that the three-factor relationship of a six-component model concordantly represents the idiosyncrasy of the dynamic capabilities within Cartagena's basic sanitation companies.

However, the findings corroborate Teece's thesis (2014), in which it is stated that "when the company's production conforms to what the market wants, the skills of the personnel, and the routines, are adequate for reaching a competitive advantage". Thus, according to the explanations for the intentions, dispositions, motives or reasons, the dynamic capabilities environment is deduced as being eclectic, given the mixed agents mentioned by the author: abilities and routines. In this sense, the importance of strategic direction and alignment based on government is highlighted. This undoubtedly makes the existence of this type of biosphere possible within organizations. It was generally found that innovation and resilience capabilities are set by SMEs in ways not previously discovered for delivering relevant economic performance. These demonstrations have the potential to lavish implications for academia and the real-world, sector advancing into the next avenues of inquiry.

Implications for the literary body of work

Under the current empirical analysis threshold, dynamic capabilities in the organization are undertaken from the paradigm of strategy and the theory of dynamic capabilities. The development and understanding of these in tangible terms has created an obvious interest from management theory over the past 25 years. It is based on a dual but still abstract and disintegrated discourse of knowledge suitability to configure processes, in order to 'learn to learn' quicker than the competition in turbulent and chaotic markets, just as Robledo (2012) and Robledo et al., (2015) agree. In this regard, the study and its findings empirically support, and in grace of the theoretical but conditioned universality that the DCs include dimensions and factors that transcend the operation of resources, giving rise to competencies and routines of high strategic value. For this reason, it is necessary to adopt a conciliatory position around the hypothetical dispute between cataloguing them as skills (Teece, 2014) or repetitive patterns (Winter, 2013). Hence the tolerant vision and epistemological position of the researcher.

Concerning the specificity of the research problem, as mentioned above, several positions have been developed. However, this study contributes with an original, novel and pertinent case study from the Theory of Dynamic Capabilities, thus enabling the determination of the eclectic ecosystem of the construct. We can infer from the foregoing, that the contribution of the presented dissertation is that of enriching the conceptual framework, the analytical theoretical generalization of the phenomenon, but studied under the same methods and procedures presented in the article and the hypothetical principles of what would be called the new environment of dynamic capabilities within the Organization Theory. Furthermore, the practical derivations achieved show that the dynamic capabilities of innovation and entrepreneurial resilience explain financial profitability in its eclectic and integral ecosystem. From the structural point of view, the determined contribution of the

discussion is the multidimensional and factorial explanation of the dynamic capabilities in the increase of Financial Profitability.

Implications for General Management

Regarding the literary corpus, the method, the procedures and the techniques of the quantitative scrutiny, added to the results obtained, it is pertinent to point out that they will serve as a reference of interest and consultation for the academy and the real-world sector. The preponderant role of dynamic capabilities within organizations that generate high-value strategic and tactical actions in order to achieve their sustainable competitive advantage must become permanent points of organizational reflection.

On the other hand, the scientific examination outlines the idiosyncratic potential of firms, based on the competencies and processes of innovation and resilience on the basis of relevant market information, then focusing on their learning through the generation of knowledge, which will generate entrepreneurial innovation in chaotic and dynamic markets. However, given the multivariate condition of those inconstant studied, the *ad hoc* exploratory method, the size of the population and final sample of the competitive sector as a unit of analysis, it was possible to contrast the cardinal hypothesis, validating and testing the author's cognitive position of the analysis in the sense that the biosphere of the dynamic capabilities is eclectic.

Leaving aside the method's limitation, this analysis provides promising lines of research for management teams, management science and the real-world sector on the development and management of dynamic capabilities. Management teams based on leadership, organizational culture and idiosyncratic strategies through the training and development of skills and routines of world-class competitiveness, inspires essential concepts and constructs that characterize the holistic organization. In such a situation, every leader and student in the field of strategy is expected to understand the importance of dynamic capabilities as a source of sustainable competitive advantage.

Limitations

A first constraint is that 289 members of the management team from the 304 examination population unit responded to the three surveys, representing 95%, since a smaller proportion were on holiday and unable to take part. Another restriction is subject to the perception of the management teams of the 96 companies that together form the basic sanitation sector of the city of Cartagena; however, it could be different than what was stated by the middle management personnel who answered the questions from the data collection instruments.

In addition, the *ad hoc* measurement method and instruments, although validated by experts and reliable according to different statistical techniques explained in the Result chapter, were applied at a given time, by virtue of which it was not possible to know the findings of the analysis units in different time frame scenarios, which would help to generalize the Theory of Dynamic Capabilities. On the other hand, it was not possible to collect the information associated with the profitability variables: Return on equity; operating profit margin; administration expenses and sales values; gross profit margin; net profit margin, since the data was not supplied by the companies.

The first collated hypothesis and its alternatives address the primordial problem; these alternatives could not be validated through the technique of additive or average scales as initially budgeted but were contrasted by means of structural equations. Even so, in the end it manages to establish a limitation in the scope of the scrutiny and the particularities of the analyzed companies, due to the fact that the sector is conformed only by 96 commercial companies, which are characterized by being Small and Medium-sized enterprises. Consequently, the influence of dynamic capabilities on Financial Profitability in a much larger industry in population units could be addressed in a future research, provided that the findings are generalized.

Future Research Lines

Apart from the quantitative work that was carried out, more research is required for the nature of the dynamic capabilities, as well as its relationship with Financial Profitability, even for different productive sectors, micro, medium and large companies, especially in the Latin American context and in the Colombian Atlantic Coast. Lastly, as part of the present clause, more practical research is needed to validate the eclectic and integrated effects of the dynamic absorption, learning, innovation, adaptation and business resilience capacities on financial profitability.

Another research line is based on the ontological and social aspect of the dynamic capabilities of Colombian micro and SMEs, and consequently on their financial profitability and other sustainable competitive factors. A large company and micro and SMEs must take strategic actions that make it impossible for them to reveal their internal competitive advantage, given that if they do, they will lose their inimitability, sustainability and surprise factor, and in such virtue, understanding the dynamism and character of the dynamic capabilities will be a major challenge as a consequence of the arising constriction, which would require establishing new methods of analysis and support, with different theories in the managerial field.

In conclusion, the method and results obtained about the biosphere of the dynamic capabilities extend the previous research and offer a new configuration of how to study the phenomenon that has the potential to improve the future research oriented to the problem, though it is also necessary to validate them in other business context.

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STUDY OF UNDERGRADUATE NURSING STUDENTS' PERCEPTION ON THE OBJECTIVE STRUCTURED CLINICAL EVALUATION (OSCE) WHEN USED IN CLINICAL SIMULATIONS IN NURSING COURSES IN PUERTO RICO

Reina del Carmen Rivera Vélez
Universidad Internacional Iberoamericana, Puerto Rico
rerivera@suagm.edu · https://orcid.org/0000-0002-0438-982

Abstract. This study aims to explore a representative sample of undergraduate nursing students' perception on the use of the Objective Structured Clinical Evaluation (OSCE / ECOE) in nursing courses in a university of Puerto Rico. The OSCE is an educational methodology internationally recognized for its validity and reliability when evaluating clinical competencies in professionals within the field of health sciences in a formative and (or) summative manner (Harden, 2016; Abdulghani, Ponnamperuma & Amin, 2015). This study follows a quantitative, nonexperimental, descriptive, transversal design. Information was gathered using a semi-structured questionnaire with open-ended questions and closed-ended items using a Likert scale. Central tendency, dispersion, frequency, percentages and Pearson's correlation coefficient were used for statistical analysis. Open-ended questions related to strengths, limitations and recommendations on the OSCE mentioned by students were examined using content analysis. The percentage and absolute distribution of students per item for the questionnaire used in this study revealed that participants perceived the OSCE as a helpful tool in the evaluation of nursing skills. Moreover, the results proved the effectiveness of OSCE for measuring the achievement of professional competencies in nursing courses when considering the students' input. Using the students' views regarding the strengths and limitations of the OSCE, room for improvement was identified upon using it in nursing courses.

Keywords: Perception, OSCE, competence, nursing students, simulation

LA PERCEPCIÓN DE LOS ESTUDIANTES DE BACHILLERATO EN ENFERMERÍA AL UTILIZAR LA EVALUACIÓN CLÍNICA OBJETIVA ESTRUCTURADA EN SIMULACIÓN CLÍNICA EN PUERTO RICO

Resumen. El estudio que se presenta estuvo dirigido a la exploración de la percepción de estudiantes de Bachillerato en Enfermería sobre la utilización de la Evaluación Clínica Objetiva Estructurada (ECOE / OSCE) en cursos de enfermería en una universidad en Puerto Rico. La ECOE, es una metodología educativa internacionalmente reconocida por su validez y fiabilidad para evaluar las competencias clínicas en los profesionales de ciencias de la salud de manera formativa y (o) sumativa. El paradigma de la investigación es cuantitativo no experimental descriptivo transversal. Los datos fueron recopilados, mediante la aplicación de un cuestionario semiestructurado con preguntas abiertas y cerradas utilizando la escala Likert. Para el análisis estadístico se utilizaron medidas de tendencia central y dispersión, frecuencias, porcentajes y el coeficiente de correlación de Pearson. Preguntas abiertas relacionadas con fortalezas, debilidades y recomendaciones relacionadas a la ECOE mencionadas por los estudiantes, fueron examinadas mediante el análisis de contenido. Los resultados de la distribución porcentual y absoluta de los estudiantes por ítems del cuestionario utilizado para este estudio, revelaron que los participantes percibían la ECOE como una herramienta de ayuda en la evaluación de destrezas clínicas en enfermería. Los resultados comprobaron, además, la efectividad de la ECOE para medir el logro de las competencias profesionales en cursos de enfermería. Mediante las propias expresiones de los estudiantes en cuanto a las fortalezas y debilidades de la ECOE, pudieron identificarse áreas a mejorar al utilizar la misma en cursos de enfermería.

Palabras claves: Percepción, ECOE, competencias, estudiantes de Enfermería, simulación

Introduction

Justification and Problem

Studies have found that newly graduated nurses do not have the clinical skills required to provide high-quality care to their patients (Hengstherger-Sims et al., 2008). Nursing educators have the responsibility of ensuring that their students achieve the required nursing-related competencies. (Stoll, 2015; Jeffries, 2012). According to Standard 4.7 of the Accreditation Commission for Education in Nursing (ACEN) in 2015, evaluation methodologies must be varied, reflect established professional and practice competencies, and measure the achievement of the nursing student's learning outcomes.

With the challenges of providing high-quality clinical experiences, nursing education is at a crossroad between tradition and innovation. Traditional assessment methods have a different approach to the integration of clinical competency examinations. It is therefore necessary to diversify the curriculum by integrating evaluative methodologies with different approaches and to provide proof of validity and reliability in the evaluation of clinical skills. The OSCE is an alternative for achieving this (Khattab & Rawlings, 2008) and can provide more evidence of learning outcomes and professional competency achievement.

According to Oranye, et al. (2014), the OSCE should be included in the design of nursing programs and in the assessment of professional nursing competence level. The integration of the OSCE in nursing programs could help prepare the students so that they can successfully carry out the required assessments in order to be hired in different parts of the world (Merrifield, 2016). If the OSCE can be a determining or promoting factor in a student's success within their study program, there must be valid proof or research evidence related to the use of the OSCE.

The aim of this study is to know what undergraduate nursing students think about the incorporation and use of the OSCE at the end of their nursing courses at a university in Puerto

Rico. It is also expected to study the achievement of the competencies attained by the participants using this assessment method. The findings from this research may help to integrate the OSCE into nursing programs in Puerto Rico. It may also be an opportunity to share knowledge about the best practices in the use of this assessment modality within a clinical simulation environment from students' perspectives.

General Objective

To know the opinion of undergraduate nursing students about the Objective Structured Clinical Evaluation (OSCE) in a clinical simulation for nursing courses at a university in Puerto Rico.

Hypothesis

H1 Students view the OSCE as a tool to assist in the assessment of clinical and non-clinical nursing skills.

H2 The OSCE facilitates the identification of the professional competence level achieved by students at the end of a nursing course.

Literature Review

Assessment measures quality and productivity to achieve a standardized performance level (Bourke & Ihrke, 2005) and represents the evaluation of learning outcomes. It tells us how capable the student is about meeting certain skills, knowledge and attitudes to solve problems within the field of health. It is important to remember that what is not evaluated is devalued (Goñi, 2005). If there is assessment, there is regulation. Through regulation, the student knows the areas in need of improvement and can stop making the same mistakes, which keep them from achieving the required learning outcomes and competencies.

In 1975 Dr. Ronald McGregor Harden published a new method of estimating clinical competencies, the Objective Structured Clinical Examination (OSCE). The OSCE was applied to medical students in Scotland in order to resolve some of the difficulties identified in traditional assessment methods. Since 1979, the timed examination has been modified, developed and officially named the "OSCE", becoming a pillar of worldwide clinical assessment (Harden & Gleeson, 1979; Abdulghani, Ponnamperuma & Amin, 2015). The OSCE was originally described as "a timed examination" in which the medical student interacted with a series of simulated patients in 16 stations, while an examiner observed and evaluated their clinical performance with a checklist.

At each OSCE station, the student could perform different challenges within 5 minutes. At the end of each stations the student would then move to subsequent stations with questions related to the standardized patients from the previous ones. This included performing a medical history and physical examination, the counseling and treatment of the patient. The use of the OSCE in nursing was integrated for the first time at the University of Ottawa in Canada. (Ross et al., 1988). The study from this experience suggested that the OSCE could be a powerful tool in the evaluation of clinical competencies. According to Ross, et al. (1988), it could also be an effective facilitator for learning to perform clinical skills in nursing, as well as in the field of medicine.

The OSCE makes it easier to assess the parallelism between clinical performances in simulated situations within the clinical laboratory and actual clinical practice situations. It is a form of estimation that examines clinical competencies, such as medical history, physical examination, communication skills, ethics, attitudes, and professionalism (Harden et al., 1975). It is characterized by a high level of planning, coordination, and structuring of scenarios in a simulated clinical environment that evaluates the competency components of an

academic course or program (Caballero, 2012). The structure and design of the OSCE traditionally focused on the clinical objectives corresponding to the simulated experiences practiced and are evaluated in checklist formats (Caballero et al., 2012). The OSCE is used to evaluate the clinical practice in many disciplines in the United States and usually consists of 12 stations of 5-15 minutes each. The total OSCE process concludes in 8 hours with 2 breaks. In the simulated clinical environment in nursing, the evaluation facilitates objective, controlled and safe estimation of clinical and non-clinical health care skills.

In a pilot study called "NURSEOSCE", the application of the OSCE was evaluated in a formative and summative way at a nursing school in the Universidad de Carolina del Este (*University of East Carolina*). The faculty, students, and standardized patients found that the OSCE was a worthwhile educational experience. The students' response was positive, and they recognized the good preparation obtained through the OSCE at the end of the clinical experience. Some students suggested that the OSCE should be a mandatory assessment (Rentschler, Eaton, Cappiello, McNally & McWilliam, 2007). Several advanced nursing programs have already incorporated an OSCE format. One of these formats used in an Advanced Practice Nursing Graduate program includes the estimation of skills by incorporating volunteers who act as standardized patients. (Khattab & Rawlings, 2008).

According to Walsh et al, 2009, the OSCE is an efficient way of assessing skills and knowledge by rotating students through stations where a clinical environemnt is simulated. The number of scenarios can vary from 4 to 42, with 4 to 15 minutes for each station. Another study found that the OSCE improves skills and knowledge in calculus and medical drug administration (Meechan, Jones & Valler-Jones, 2011). In another qualitative descriptive research study, midwifery students perceived greater effectiveness in assessing obstetric emergencies and preparing students for clinical practice through OSCE compared to other forms of evaluation. They recognized the OSCE as an excellent tool for increasing depth in learning (Barry et al., 2012) and for developing critical thinking.

At the St. Sebastian University in Chile, they considered it necessary to incorporate the OSCE into the nursing career. During the investigation of the students' perception of this methodology, they perceived the OSCE as a positive evaluation experience. In addition, they recognized it as an opportunity to strengthen learning. Some felt that seven minutes was insufficient at some stations. In addition, they found it stressful, but only at the beginning, due to their lack of experience with this evaluation method (Alarcón A., 2013).

In 2013, the University of Cadiz (UC) started the innovative integration of the Objective Structured Evaluation of Nursing Care (OSENC) evaluation methodology based on the OSCE. The same methodology is used in the Practicum courses of the Department of Nursing and Physiotherapy (Moreno Coral, 2013). The UC has produced specific guides describing the environment and conditions that facilitate the effectiveness of the OSENC. This university planned the design of the stations based on the activities listed in a Portfolio.

In a research conducted in 2014 in Australia, they developed and integrated guidelines for best OSCE practices in nursing. The study suggests that the integration of best practice guidelines into OSCE is an effective tool for assessing the learning of nursing students' knowledge and skills (Kelly et al., 2016). Some hospitals in Canada currently require nurses to pass an OSCE examination for recruitment (Merrifield, 2016). There is no specific design or structure to carry out the OSCE, each institution develops their own (Scalabrini, 2015). The institution participating in this research designed the OSCE based on its curricular program and its characteristics according to the literature. It considers the principles established by Harden & Gleeson (1979) and the findings and recommendations of research carried out on their incorporation into the different disciplines and nursing programs from different countries.

Methodology

The design of this research corresponds to the paradigm of cross-sectional nonexperimental descriptive quantitative research. The variables sampled in this study were professional competence, OSCE and perception.

Population and Sample

The population of this study was composed of students from two undergraduate degree courses in nursing who participated in an OSCE at a university in Puerto Rico. The sample size was determined by the institution that authorized the sample considering the specific number of students who participated in an OSCE during the time of the research. The institution in Puerto Rico that granted the opportunity to conduct the study, authorized the participation of up to a maximum of l05 students in the courses that were being evaluated through an OSCE during a specific academic semester. It was possible to obtain 100% of the sample allowed for this study.

Instruments

An instrument designed, validated and submitted to expert opinions in a research with similar characteristics regarding this study, and conducted by Dr. Ángela Alarcón (2015) at a university in Chile, was used with suitable authorizations and cultural adaptations. The instrument or questionnaire finally used in this study was design in order to evaluate undergraduate nursery students' perceptions about the OSCE test in nursing courses at a university in Puerto Rico. The internal consistence in the questionnaire was assessed trough the Cronbach alpha formula. Significance level was set at $p < 0.05$.

A test run of the questionnaire was made with 77 students with similar characteristics to the sample chosen for the formal study. The instrument largely meets the basic case that, if a factorial analysis can be carried out, the recommended number of subjects involved must be between two and ten times the number of items. Once the sample size was confirmed to be adequate for studying the instrument's technical quality, validity evidences in the scale were analyzed.

As a prelude to the construct validity analysis, the homogeneity of the questionnaire was calculated and any item with a low discrimination level and, therefore, a <200 correlation with the total in the scale. In this study, the questionnaire's application for gathering all necessary data was possible after obtaining the required permissions. Before its application, these permissions were granted at the university where the study was carried out and by the subjects themselves. The instrument designed for this research includes 17 closed-ended questions and 4 open-ended questions.

In the first section, the general and sociodemographic aspects of the participants in the study were identified. In addition, an open-ended question was included to know what the students expected their final scores would be in the OSCE test. In the second section, specific or close-ended questions for getting the students' opinion about the OSCE test were presented, using as quantitative analysis: (5) I completely agree, (4) I agree, (3) Indecisive, (2) I disagree, (1) I completely disagree. Items 1 to 10 of the Perception Scale were created for the research on the perceptions about the OSCE as an assessment tool and the students' opinions when participating on the assessment.

1. The OSCE enables assessing:
   a. Theoretical knowledge
   b. Clinical skills
   c. Ethical behavior
   d. Communication skills

2. Stations are realistic and representative of real-world clinical practice
3. The OSCE measures the established objectives
4. The stations reflect the contents studied during the course
5. Would you consider the OSCE a stressful assessment
6. Were the allotted times enough for completing the stations
7. The presence of an observer, in the stations, interferes with your work
8. The OSCE is beneficial for professional training
9. Would you consider the OSCE an effective learning experience
10. OSCE must be included as assessment method in this course

In the third section, three open-ended questions were made in which students could mention the strength and weak points of the OSCE test as an assessment strategy, as well as any recommendations for improving it.

Analysis and Results Discussion

The SPSS 19 statistic program from IBM was used to analyze the data. Statistical analysis was based on a descriptive analysis through absolute distributions (frequencies), average result and percentile distributions (qualitative variables). In addition, the central tendency and spread measures were calculated.

A Student t-Test was conducted in order to compare the average values (arithmetic mean) between the students' expected scores and the obtained scores. This deepened the identification of the level of competences reached by the students. Pearson's correlation coefficient is used in the explanation. A multivariate analysis was carried out in order to identify possible confounding variables.

Open-ended questions related to the strengths, weaknesses and recommendations mentioned by the students were examined through content analysis. This research technique reveals meanings and assessments through essentially verbal or communicative data shared by the participants. It uses the recording, coding, and summary of expressions provided in categorizations that allow for efficient representations that simplify the collected volume of data (Krippendorff, 2013).

Results

Respondents had the opportunity to express their opinions on the OSCE after being evaluated in the achievement of competencies at the end of two nursing courses. Their expressions helped to identify, based on evidence, that the incorporation of this assessment method can help to identify the levels of competencies attained by students in their curriculum. It was possible to identify the strengths, weaknesses and recommendations to improve the use of the OSCE from the students' perspective.

The socio-demographic profile of the participants in this study was constituted by a sample of 105 undergraduate nursing students from a university in Puerto Rico. It was possible to obtain 100% of the sample allowed for this study. It was made up of students enrolled in the Adult Nursing Care II course (Third year) and in the Integrated Clinical Nursing Practice course (Fourth year) of the Nursing undergraduate program.

68.6% of the students surveyed (n = 72) participated in the OSCE in the third-year course. On the other hand, 31.4% of the students (n = 33) participated in the fourth-year course. The majority (73.3%) of the students who participated in this study were female. Figure 1 summarizes this distribution by gender. There were representations from all age groups, with the highest percentage of participating students between the ages of 21 and 30.

In order to validate the effectiveness of the OSCE in measuring the achievement of professional competencies of nursing students in simulated clinical scenarios, a factorial analysis of main components was performed.

This factorial analysis allowed grouping the reagents in factors or components that could explain the variance observed in the subjects' answers. The analysis of the main components and the Varimax rotation showed the convergence of two factors. Under the first factor, seven items that allude to Perception in terms of the OSCE as an assessment tool were gathered. On the other hand, the second factor was composed by the six remaining items that evaluate the perception on participating in the OSCE.

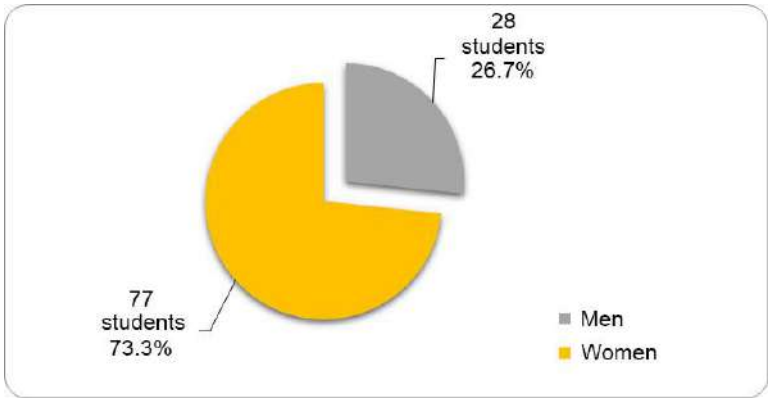

Figure 1. Nursing students participating in the study by gender

The items were configured according to the degree of saturation in each factor. All items had a factorial load greater than 0.3. Factor 1, perception of the OSCE as an assessment tool, reveal items with a factorial load between 0.393 and 0.820. This factor encompasses items that emphasize that the OSCE allows for the evaluation of theoretical knowledge, clinical skills, ethical behavior, and communication skills, as well as the realism, objectives, and content of the OSCE and its stations. As for Factor 2, perception of the experience of participation in the OSCE, factorial loads from 0.332 to 0.743 were observed. The items under this factor allude to aspects that can make the OSCE a beneficial experience for students, which is a stressful evaluation possibly due to the allotted times or the presence of an observer, and the desire to include it as an evaluation method.

The internal consistency analysis achieved a Cronbach alpha value of 0.742. The correlation of the items with the total scale was optimal with the lowest value of *rho* = 0.331 (in the item Were the allotted times enough for completing the stations) with the highest value of *rho* = 0.638 (in the item Would you consider the OSCE a stressful evaluation). The above results suggest the effectiveness of the OSCE in measuring the achievement of professional competencies in simulated clinical scenarios by taking into account the nursing students' perception.

As a second objective, the aim was to identify the level of competences attained by the students. The questionnaire included a question that auscultated the final score that the students participating in the OSCE expected to obtain. In addition to the information on the official grades of the institution, the score that the students finally obtained in the evaluation was extracted. The analysis of the results indicated that the level of proficiency achieved by the students was generally high.

The data corresponding to the expected score and the one finally obtained by the nursing students are shown in Figure 2. The students' perception of the expected OSCE score tended to be 80-89%, by bringing 59% of the participants together. Among the scores finally obtained, the same line was the highest, but with 32.4%. The greater percentile of students, both in the expected and earned scores, were at the highest end of the scale (80-89% and 90-100%). In the score obtained, a notable percentage of students scoring less than 70% was observed, compared to the expected score (19% vs. 2.9%). In the score obtained, a notable percentage of students scoring less than 70% was observed, compared to the expected score (19% vs. 2.9%). The minimum number of students expected to get a final score of A or less than C.

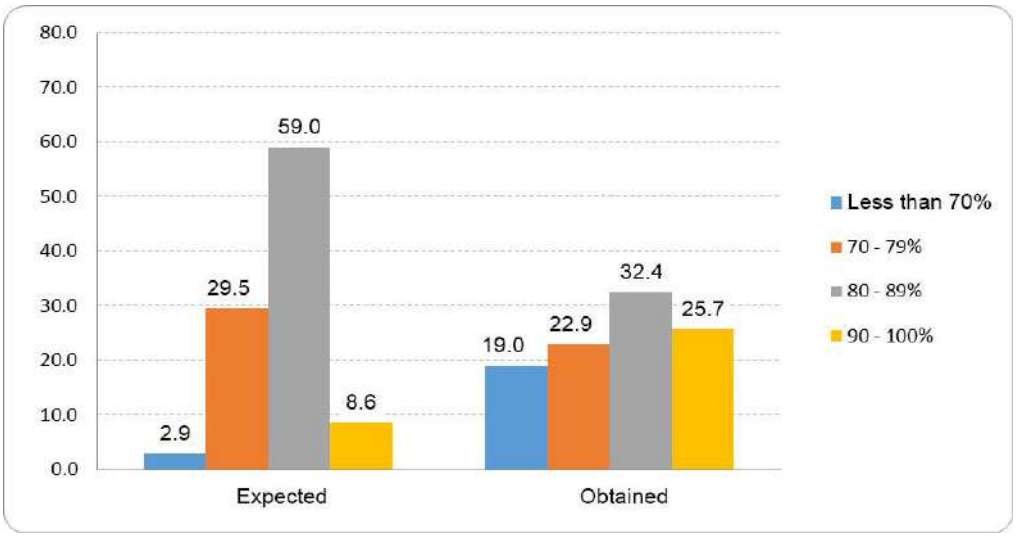

Figure 2. Percentile distribution of expected and obtained final scores by students participating in the Objective Structured Clinical Evaluation (OSCE) within two nursing courses from a university in Puerto Rico (n = 105).

In order to compare the expected scores and those finally obtained, the Student t Test was used for comparing the means. The aim was to determine whether there were differences between the scores and whether they were significant. The mean scores were very similar. t Test results for related variables show a non-significant value ($p = .491$). The scores turned out to be correlated with each other, although the pass rate expected by the students was generally higher than the one finally obtained as a grade.

When the multivariate analysis of logistic regression was performed, we did not find a high degree of significance ($p<0.05$) of the sociodemographic variables of sex, age and the academic period in which they took the course to determine or predict the score finally obtained. With the specific third objective of collecting data related to the nursing students' perception of the OSCE by means of questionnaire, the items comprising the questionnaire were analyzed. For this purpose, the classification of the items into the two factors that emerged from the analysis factor was taken into consideration. These are: Perception Factor 1 regarding the OSCE as an evaluation tool and Perception Factor 2 regarding the experience of participating in the OSCE.

The perception shared by the students through their responses in the questionnaire reflected a high valuation of the OSCE as a method of evaluation and formative experience. The highest percentage of students expressed strong agreement that the OSCE is a tool for assessing theoretical knowledge, clinical skills, ethical behavior and communication in

nursing courses. The students participating in this study expressed strong agreement that the OSCE stations were realistic or representative of actual practice and that they were related to the content seen in the courses. They also expressed great agreement that the OSCE allowed measuring the objectives established in its design.

This first factor, OSCE as an evaluation tool, included seven items. Figure 3 summarizes their analysis. More than 50% of nursing students strongly agreed with these statements which referred to the positive aspects of the OSCE. It is clear from the figure that practically all students agreed or strongly agreed with the items. However, a significant percentage of them disagreed or were uncertain about the item that referred to the stations as realistic; representative of actual clinical practice. When ranking the items by percentage, it was found that more than 80% of nursing students strongly agreed that the OSCE allows the evaluation of clinical skills (81.9%) and ethical behavior (81%). Other high percentages in the very agreeable alternative were recorded in items that indicated that the OSCE allows evaluating theoretical knowledge (78.1%) and communication skills (76.2%).

These results denote the nursing students' perception with respect to the evaluative value that the OSCE has for their professional training process. It also highlighted, with similar percentages, that the majority of the participating students perceived that the stations are in agreement with the course contents (73.3%) and that the OSCE measures the established objectives (71.4%). In turn, 57.1% of the students strongly agreed that the stations are realistic; that is, that they perceive them as representative of real clinical practice. This percentage, although majoritarian, turned out to be the lowest in the list of Factor 1 items. It is important to consider increasing the realism of the stations for improvement of the OSCE.

The nursing students' perception about their experience of participation in the OSCE (Factor 2) was highly positive in terms of its benefits. However, a significant amount of them expressed that the allocated time and stress was a challenge in completing the stations. The highest percentage of students expressed disagreement in that the presence of an observer interferes with completing their work at the OSCE stations.

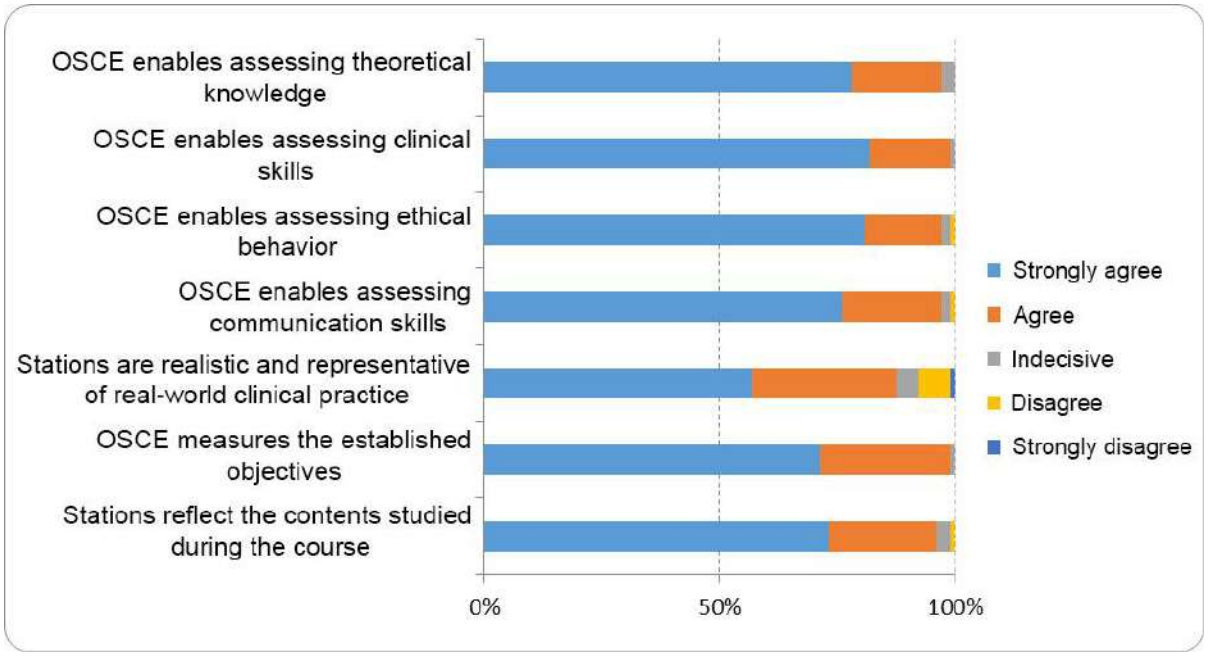

Figure 3. Distribution of students participating in the Objective Structured Clinical Evaluation (OSCE) by Factor 1; Perception based on OSCE as an evaluation tool.

We can see in Figure 4 that when organizing the items of Factor 2 by percentage achieved, about 70% or more of the nursing students mentioned strongly agreeing that the OSCE is an effective learning experience (74.3%), and that it should be included as an evaluation method in the course (72.4%). Another high percentage in the strongly agree choice was found in the item stating that the OSCE is beneficial for professional training (69.5%). Half of the participants (51.4%) did not consider the OSCE to be a stressful assessment. The results show that a considerable number of students perceived it as a stressful experience. This should be considered during the planning and implementation of the OSCE. In general terms, the results of the Factor 2 items denote the positive perception of nursing students regarding participation in this type of assessment.

A fundamental part of the study was to explore the nursing students' perception regarding the strengths, needs and recommendations they identified when using the OSCE. These findings pointed to identifying aspects that were beneficial for students when participating in the OSCE, and areas of opportunity to give continuity to this tool as an evaluation method when training nursing professionals. Ninety-three (n=93) out of 105 nursing students who participated in the OSCE identified strengths in using this type of assessment.

These students provided 96 answers that were classified into 10 strengths, as shown in Table 1. The three most mentioned strengths by the participants were that the OSCE was beneficial for practice and professional training (33.3%); that it was a good self-evaluation strategy (25.8%); and highlighted its organization and structure (18.3%). An expression that very well characterized the strength of the OSCE as an effective self-evaluation strategy was the following report of a student: "Thanks to the OSCE, I was able to see my weaknesses and that I need to dedicate more time and effort in order to get good results and to perfect my skills".

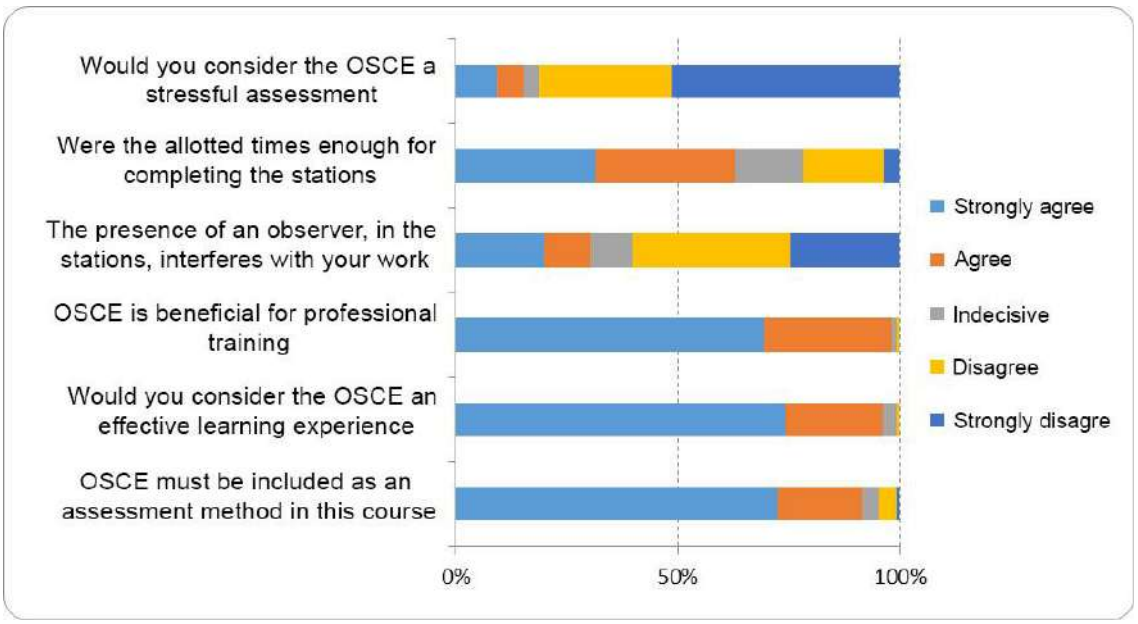

Figure 4. Distribution of students participating in the Objective Structured Clinical Evaluation (OSCE) by Factor 2, Perception on the participation experience within the OSCE

Table 1
Strengths that the participating students discovered when using the Objective Structured Clinical Evaluation (OSCE) in nursing

Strengths	Frequency	Percentile
Benefit during practice and professional training	31	33.3
Good self-evaluation strategy	24	25.8
OSCE organization and structure	17	18.3
Stages as real and practical scenarios	7	7.6
Contributes to the development of skills	4	4.3
Develops self-confidence	4	4.3
Efficient learning exxperience	3	3.2
Human resources (professors, observers)	3	3.2
Time management	2	2.2
Materials	1	1.1

In terms of its strength as a good self-assessment strategy, students agreed that the OSCE truly tests students, helps clarify doubts, and is an effective tool for practicing skills that could not be practiced in clinical areas. In addition, they mentioned that it helps to assess capacities to intervene in real (critical) stressful scenarios and enables them to identify areas for improvement before graduation, or whether they are qualified for what they have been trained for.

Seventy-six (n=76) out of 105 nursing students who participated in the OSCE identified needs or weaknesses of this assessment method. This group of participants provided 79 answers that were classified into 12 areas of need; that is, aspects that require attention. The list of requirements is summarized in Table 2. The need or weakness that can be considered the main one, as it is the most mentioned one by the participants, was the time factor required by the OSCE. 55.3% of the nursing students who participated in the OSCE alluded to time as a weakness of their experience with this assessment.

Table 2
Improvements that the participating students identified when using the Objective Structured Clinical Evaluation (OSCE) in nursing

Weaknesses or improvements	Frequency	Percentile
Time factor	42	55.3
Creates stress	12	15.8
Materials	7	9.2
Need for more practice	6	7.9
Human resources	4	5.3
Previous notification	2	2.6
Communication	1	1.3
Evaluation in hospital or place of practice	1	1.3
Frequency	1	1.3
Late implementation	1	1.3
Student insecurity	1	1.3
Skill subdivision	1	1.3

The stress-generating aspect (15.8%) and the materials used (9.2%) were also identified as areas of need for attention. Among the remaining answers provided, one group of students expressed the need for more practice (7.9%).

Eighty-seven (n =87) of the nursing students who participated in the OSCE identified recommendations regarding the use of the OSCE. These students provided 111 answers that were classified into 17 recommendations, which are outlined in Table 3. In addition, they made specific mentions aimed at the implementation of the OSCE (16%). These may include: that the OSCE continues to be administered more frequently or in each semester; that it be used in all or other courses, such as pediatrics, maternity and psychiatry;

that it be included as part of the record; that it not only be performed in the previous year, as it can help to reinforce the techniques taught. Other recommendations were aimed at conducting pre-course evaluations or tutoring before the process, improving the availability of equipment and materials, improving practice areas and stations, as well as facilitating activities that help reduce stress.

Table 3
Recommendations that the participating students identified when using the Objective Structured Clinical Evaluation (OSCE) in nursing

Recommendations	Frequency	Percentile
Increasing time	43	49.4
Access to stations for practice or more previous preparation and practice	15	17.2
OSCE implementation	14	16.0
Carry out previous evaluations at the end of the course or tutoring before the process	7	8.0
Improve equipment and materials	6	6.9
Improvements to practice areas and stations	6	6.9
Stress reliefs	3	3.4
Better explanation of the OSCE and instructions	3	3.4
Human resources (ej. Greater support from the faculty)	3	3.4
Oportune citation and notification	3	3.4
Used for improvement	2	2.3
Evaluation with partner	1	1.1
Evaluation led by practice	1	1.1
Greater coordination	1	1.1
Improving the rubrics	1	1.1
Strengthen the physical test	1	1.1
Silence in the classroom	1	1.1

Discussion and Conclusion

The outcomes of the percentage and absolute distribution of students by questionnaire items and the identification of strengths revealed that participants perceived the OSCE as an aid tool in the evaluation of clinical and non-clinical nursing skills. The average scores obtained on the 5-point scale provided in the questionnaire reflected that the students tended to agree with the items that stated positive aspects of the OSCE. Students consider the OSCE very useful for evaluating various aspects such as clinical skills, ethical behavior, theoretical knowledge and communication skills. They consider it a stressful event. These results are consistent with the literature available in this research (Harden, et al., 1975; Rentschler, et al., 2007; Khattab & Rawlings, 2008; Alarcón, 2013).

Among other things, they recognized the OSCE as a learning experience that measures established goals and continues to be an effective facilitator for learning to perform clinical nursing skills as identified by Ross, et al. (1988). Therefore, this research demonstrates that hypothesis number 1; students perceive the OSCE as a tool to assist in the evaluation of clinical and non-clinical nursing skills, is positive. The analysis of the score

expected by nursing students suggests that the OSCE facilitates the identification of the level of professional competence achieved by students at the end of nursing courses.

The perception of students who thought that they would have a score lower than 70% in the OSCE was less. However, the students' own expressions of the OSCE's strength and weaknesses demonstrates their appreciation of this tool for measuring their professional competencies. They also expressed the areas that must be improved in order to confront the challenges that they may face in their profession and in the formal practice of nursing with greater preparation. It is evident from this research that hypothesis number 2; The OSCE facilitates identifying the level of professional competence achieved by students at the end of a nursing course, is positive.

Incorporating the OSCE for professional competencies evaluation is an innovative educational experience in Puerto Rico that can contribute to the development of nursing curricula based on competencies. The estimated level reached in the achievement of the competences through the OSCE eases self-evaluation and planning to increase skill levels by completing different nursing courses before graduation. The knowledge of the viability and aspects to be improved in the use of the OSCE helps to identify the characteristics for its effectiveness in achieving the learning outcomes in nursing courses. Therefore, the knowledge acquired through the results of this research can help in best practices when using the OSCE in simulation centers in Puerto Rico.

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Implications

Exploring the students' opinions participating in this study revealed important aspects to consider when incorporating the OSCE in nursing programs in Puerto Rico. The respondent students' answers were positive and represented an opportunity for their improvement and the achievement of their goals. Although the OSCE requires time and effort for its incorporation into the curriculum, its scope for the professional competences achievement remains significant in Puerto Rico as well as internationally.

This study demonstrates its efficacy and validity to assess competencies as required by accrediting agencies of nursing programs. Students suggest it be used in a summative and (or) formative manner in all nursing courses. They identified aspects that facilitate the OSCE such as: privacy, greater use of standardized patients, 10-15 minutes allotted time per station, greater practice and previous preparation before the OSCE, among others. Since a significant number of respondents experienced it as stressful, considering these aspects and the prior exploration of students' knowledge and practices can help reduce interferences in their performance when evaluated through the OSCE.

The design and integration to carry out the OSCE is developed based on the characteristics and curricular programming of each discipline and institution. The identified need for the required materials and equipment implies recognizing cost-effective strategies or the possibility of considering an additional budget to comply with them as has been essential

in some nursing programs that use the OSCE internationally. The OSCE is an assessment methodology used internationally in the recruitment of nursing professionals. By participating in it, graduates may be more prepared to better perform during recruitment processes in different countries.

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