



ISSN: 2230-9926

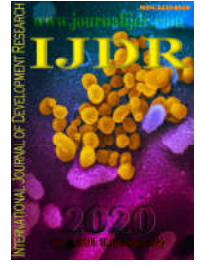
Available online at <http://www.journalijdr.com>

IJDR

International Journal of Development Research

Vol. 10, Issue, 11, pp. 42172-42180, November, 2020

<https://doi.org/10.37118/ijdr.20498.11.2020>



RESEARCH ARTICLE

OPEN ACCESS

VALUE CO-CREATION CONTRIBUTION TO CULTURAL AND REGIONAL PLURALITY FOR THE UNPRME IMPLEMENTATION

***Aline Bento Ambrósio Avelar, Milton Carlos Farina**

University of São Caetano do Sul (USCS), Brazil

ARTICLE INFO

Article History:

Received 02nd August, 2020

Received in revised form

20th September, 2020

Accepted 19th October, 2020

Published online 30th November, 2020

Key Words:

Principles for Responsible Management Education (PRME), Social Network Analysis (SNA), Value Co-creation, PRME Chapters, Higher Education Institutions (HEIs)

*Corresponding author:

Aline Bento Ambrósio Avelar,

ABSTRACT

This study analyzes value co-creation based on interactions from Chapters of Principles for Responsible Management Education (PRME) chapters social network by promoting the cultural and regional plurality of new signatory Higher Education Institutions (HEIs). HEIs face the challenge of developing leadership capable of promoting sustainable development. The PRME can collaborate to meet this challenge by promoting the cultural plurality of signatory HEIs in order to achieve SDGs. The objective of this research was to analyze the interaction among the Chapters of the PRME and verify if the social network strengthened the development promoting innovative activities and projects linked to the PRME, with the aim of developing responsible managers in the signatory HEI. Centrality measures (degree, closeness and betweenness), density, reciprocity and cliques are analyzed from the Chapters. Different experiences due to the specificities of each region are relevant for exchanging information and taking joint action in order to raise the profile of sustainability in signatory HEIs. Exchange of information between HEIs and Chapters is essential for value co-creation and the cultural plurality of the signatory HEIs fosters interaction between the Chapters. However, the values of the structural measures of value co-creation were low, which indicates a need for greater encouragement of interaction between Chapters in the exchange of information and the performance of joint activities.

Copyright © 2020, Avelar, A.B.A.; Farina, M.C. This is an open access article distributed under the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Citation: Avelar, A.B.A.; Farina, M.C. 2020. "Value co-creation contribution to cultural and regional plurality for the unprme implementation", *International Journal of Development Research*, 10, (11), 42172-42180.

INTRODUCTION

In 2000, the United Nations (UN) launched the Global Compact, which can be understood as an ambitious attempt to engage the international business community in sustainable development (SD), including the implementation and dissemination of policies and sustainable practices within an inclusive and multiparticipatory orientation (Kell, 2012; Buono, 2014; Gitsham and Clark, 2014; Parkes *et al.*, 2017). In 2007, Global Compact and the main Higher Education Institutions (HEIs) defined the six Principles for Responsible Management Education (PRME), with the aim of supporting and stimulating responsible management: Purpose, Values, Method, Research, Partnership and Dialogue. (UN Global Compact, 2007; Cooper *et al.*, 2014; Buono *et al.*, 2015; Parkes *et al.*, 2017). Created in 2013, the PRME Chapters act as local and regional platforms for dialogue, learning, responsible management and research. Fourteen Chapters are engaging with signatory HEIs to implementing and adapting the six principles to their local contexts in order to promote

cultural and regional plurality. (Haertle *et al.*, 2017; UNPRME, 2019). The present study understands the term "culture" as referring to "beliefs, values, rules, norms, symbols and traditions learned that are common to a group of people" (Northouse, 2007, p. 302). As Hofstede (2011) noted, the behavior of societies is affected by their characteristics at the regional and national levels. Therefore, preserving and promoting the plurality of signatory HEIs by means of local and regional platforms is a challenge for the Chapters. Interaction between Chapters should yield a social network analysis capable of improving and strengthening the development and promotion of innovative activities and projects linked to the PRME and the Global Pact (UNPRME, 2019). The present study examined the centrality measures (degree, closeness and betweenness), density, reciprocity and network cliques for 10 of the 14 Chapters that existed in 2018 (Wasserman and Faust, 1994; Faust, 1997; Hanneman and Riddle, 2005; Silva *et al.*, 2014; Srebotnjak and Norgaard, 2017). In this context, social network analysis (SNA) assists in understanding the value co-creation process that results from

engagement between network actors, and how such engagement can occur on existing platforms (Donato *et al.*, 2017). As of October 2020, the PRME has more than 800 signatory HEIs worldwide, obtaining a cultural and regional plurality that contributes to a more sustainable and inclusive global economy. HEIs face considerable social, economic, political, cultural and environmental challenges in developing the leadership and responsible management education necessary for advancing the implementation of the SDGs. Thus, multiple actors, including universities, local government, communities, economic actors and civil society, should engagement and commitment to overcoming the barriers to making responsible management education a reality (Bendapudi and Leone, 2003; Prahalad and Ramaswamy, 2004; Payne *et al.*, 2008; Ramaswamy, 2010; Ramaswamy and Gouillart, 2010; Rinaldi *et al.*, 2018). The number of HEIs that have endorsed international declarations is impressive. Statistical analysis has shown that HEIs with SD policies are more likely than HEIs without such policies to take the initiative in joint local/regional SD activities (Leal Filho *et al.*, 2018). However, there is more to HEI engagement than the identification of integration needs and the existence of SD policies. HEIs must also adopt universal values in their teaching curricula and research activities (Parkes *et al.*, 2017). Chapters are in a position to collaborate in promoting plurality cultures to implement the PRME in signatory HEIs, but there is a gap in the literature concerning how they can achieve this.

The objective of this research is to analyze whether interaction among the Chapters of the Principles for Responsible Management Education (PRME) and verify if the social network strengthened the development promoting innovative activities and projects linked to the PRME, thereby fostering responsible management education in signatory HEIs and, ultimately, helping to achieve the SDGs. The justification for the study is that HEIs, in their teaching, research and extension structures, are fundamental elements in acquiring, assimilating, transforming and exploiting the SDGs in order to train responsible managers. Thus, it is expected that Chapters will collaborate in value co-creation to promote cultural and regional plurality for the implementation of the SDGs by the signatory HEIs. The article is structured as follows. Section 2 presents a brief overview of PRME, Social Network Analysis (SNA) and value co-creation. Section 3 describes the methodological procedures performed to achieve the study's objectives, and Section 4 presents the results. Section 5 draws conclusions from the findings and suggests paths for future research.

Theoretical framework

The theoretical framework for this study draws on the PRME, SNA and the concept of value co-creation.

Principles for Responsible Management Education

In 2007, the six PRME principles were defined under the coordination of the Global Compact and the main HEIs, represented by 60 rectors of universities and official representatives of business schools and academic institutions. The objective was to guide educators and managers of HEIs in advancing solutions for the complex and challenging environments in which future leaders will have to carry out responsible management. The principles, designed to support

and stimulate responsible management, are Purpose, Values, Method, Research, Partnership and Dialogue. (UN Global Compact, 2007; Cooper *et al.*, 2014; Buono *et al.*, 2015; Parkes *et al.*, 2017). Alcaraz and Thiruvattal (2010) noted that the PRME represents a global action to update the programmatic content, research and teaching methods of HEIs. Gitsham and Clark (2014) approached the relevance of sustainability in management education from the perspective of signatory companies of the UN Global Compact, and their results reinforce the significance of PRME for enabling HEIs to develop responsible management. In 2016, the PRME Secretariat revised its strategic plan to achieve the UN SDGs by means of education that shapes responsible management. Thus, signatory HEIs are expected to adopt strategies to foster discussion and action that will disseminate the SDG agenda (PRME Secretariat, 2016). The objective of the PRME is to stimulate a continuous process of improvement in HEIs so that they can produce and develop responsible leadership management education that will advance the implementation of the SDGs (Parkes *et al.*, 2017).

The UN Global Compact and its signatories have set out to achieve "the development of a principle-based global engagement platform for academic institutions follows from a recommendation by academic stakeholders of the UN Global Compact" in order to train responsible managers (UNPRME, 2019). The signatories are encouraged to participate in PRME networks so that they can promote their practices in the areas of sustainability and education for responsible management. The network made available to signatories has four facets, namely (i) PRME Chapters, (ii) PRME Working Groups, (iii) PRME Champions, and (iv) Student Engagement and Partners.

The Chapters were created in 2013 to assist the signatory HEIs in implementing the six principles in their local contexts in ways that respect regional and cultural differences, and also in developing and promoting innovative activities and projects linked to the PRME and the Global Compact (Buono *et al.*, 2015; UNPRME, 2019). The role of PRME Working Groups within the network is to promote specific issues related to the SDGs, and to develop and publish material that impact on corporate sustainability and responsibility. There are six PRME Working Groups: (i) Poverty: A Challenge for Management Education, (ii) Gender Equality, (iii) Climate Change and Environment, (iv) Sustainability Mindset, (v) Business for Peace and (vi) Business and Human Rights (Haertle *et al.*, 2017; UNPRME, 2019). The PRME Champions, being considered as reference in the promotion and commitment to responsible management education, comprise 29 HEIs, 20 countries and more than 100 faculty members. The characteristics of PRME Champions are experience, engagement and commitment to overcoming the barriers to making responsible management education a reality. The fourth form of networking is Student Engagement, which aims to foster the network performance of the students of the signatory HEIs. Students identify, analyze and share opportunities to advance the SDGs (Haertle *et al.*, 2017; UNPRME, 2019). PRME is a stakeholder platform that operates in a local and global network with working groups and regional Chapters to promote good practices for leadership development and responsible management (Haertle *et al.*, 2017; UNPRME, 2019). The network performance of the Chapters can contribute to value co-creation by promoting the cultural and regional plurality of newsignatory HEIs. Thus, to

understand the relevance of the network performance of the Chapters, it is necessary to analyze their social networks in terms of both the actors and the network.

Social network analysis

The understanding of social networks created in an information-rich environment, in which groups with different cultures and experiences interact with each other, is fundamental for the development of policies, guidelines and interventions that can cause knowledge to flow (Camargo and Ferreira, 2013; Presa *et al.*, 2018). In this way, it is possible to establish which Chapters within the network have more direct contacts and greater influence among the others, and through which Chapters the flow of information is greatest. ARS investigates the relations between the actors, making it possible to formulate a strategy for promoting interactions among groups and/or companies (Kadushin, 2012; Silva *et al.*, 2014). Therefore, ARS is of particular interest for understanding exchanges of information, since it provides data on the number of contacts, the flow of communication and the social distance between the actors (Faust, 1997; Silva *et al.*, 2014). Bedin and Del Pino (2018) noted that exchange of information can result in collaborative learning, which enables the construction of knowledge through technologies. Therefore, interactions between the Chapters can occur through the PRME platform used for collaboration among the HEIs with a view to implementing the PRME.

In ARS, the relevance of the actor is a consequence of patterns of relationships. The exchange of information within the network is evaluated from the perspective of the relevance of the actor, which comes from a spontaneous and non-hierarchical organization (Marteletto, 2001; Hanneman and Riddle, 2005). Within the network, the actor is described in relation to the constraints or opportunities imposed on him or her; thus, a more favorable structural position results in more opportunities and fewer restrictions (Hanneman and Riddle, 2005). In this way, a Chapter is capable of being more influential, obtaining more information, demonstrating its experience on PRME or being the reference point for Chapters in less favorable positions. The research for this study involved verifying different measures of centrality (degree, closeness and betweenness) for 10 of the 14 Chapters that existed at the time. Degree centrality is the total number of connections an actor receives (indegree) and sends (outdegree) within the network. An actor who receives many calls has greater prestige within the network, and one who sends more links has greater influence on other actors in the network. Closeness centrality is the shortest distance between an actor and other actors in the network. A high value for this measure indicates that an actor can quickly contact other actors in the network. Betweenness centrality is the location of an actor within the network such that other actors depend on him or her in order to obtain access each other. A high value for this measure indicates that an actor plays an intermediation role in the exchange of information (Hanneman and Riddle, 2005).

The ARS investigates the relationships between the actors involved, that is, through relationships between actors who participate in a group, which has a strategic approach to study the relationships of different relationships, including business groups and their interactions (Kadushin, 2012). Social network relationships consist of links / connections, links between actors through their joint participation in social activities or

participation in collectives. This common activity creates a network of ties between the actors (Faust, 1997). The ARS assumes that the actions of individuals, organizations and social entities inserted in their environments make up a relationship structure that allows understanding the connections, which provides an understanding of their actions and movements (Granovetter, 1985). In addition, it is particularly interesting to understand the exchanges of information, since it provides data on the number of contacts, the flow of communication and the social distance between the actors. The relationship pattern defines the position of the actor in the network and provides opportunities or restrictions that affect the acquisition of information. Theoretical considerations can support the relationship between centrality and power in a network. From the point of view of exchange theory, a given actor can have direct access to any resource that can travel through the network and control the flow of resources to other actors (Kadushin, 2012). In addition to these measures of centrality, the study investigated structural measures of the network: its density, reciprocity and cliques. Network density considers the number of actors included in the network and the total number of possible connections; this indicates the speed with which information spreads among the nodes (Hanneman and Riddle, 2005; Camargo and Ferreira, 2013).

Network reciprocity indicates the extent to which an actor seeking information on the network is also being sought to provide information. Reciprocity is a measure of collaborative learning, as it demonstrates the degree to which knowledge is shared and assimilated within the network (Hanneman and Riddle, 2005). ARS also measures network cliques (subgroups), which are groups of actors in which each actor is directly or indirectly connected to the others (Emirbayer and Goodwin, 1994). Identifying cliques is a way to measure the cohesiveness of the relationships within the network by identifying subsets of actors whose interactions are relatively strong, direct, intense and frequent (Wassermann and Faust, 1994). Numerous types of interactions and exchanges of information can occur among members within a given social, corporate and academic environment, and these create bonds and links between their actors. ARS assists in understanding the value co-creation processes that may result from such engagement between network actors (Donato *et al.*, 2017). Thus, there is an understanding that interaction between PRME Chapters, promoting exchange of information and joint action, can result in value co-creation.

Value co-creation

Value co-creation is a recent approach in the study of network performance. The present research investigates the phenomenon of value co-creation on the basis of SNA, drawing on the responses of the 10 Chapters concerning value co-creation from joint action. Payne *et al.* (2008) pointed out that value co-creation can take the form of processes that provide information to the organization through tasks, mechanisms, activities, procedures and exchanges. The interaction that originates in these processes occurs in an environment of interconnectedness among those involved, and this is characteristic of a network that interacts through a platform. The PRME platform facilitates value co-creation among the Chapters, provided that there is interaction between them. SNA also assists in understanding the value co-creation process that may result from engagement between network

actors and how such engagement can occur on existing platforms (Donato *et al.*, 2017). Thus, there is an expectation that interactions between PRME Chapters that promote exchange of information and joint action will result in value co-creation. Silva *et al.* (2015) highlighted the importance of engagement platforms for the stimulation of value co-creation, while Rinaldi *et al.* (2018) emphasized that the key aspects of value co-creation are knowledge, skills and other resources that can be accessed and used. Value co-creation has also been characterized as a shared, collaborative process generating value through interactivity (Galvagno and Dalli, 2014). Möller *et al.* (2007) warned that proposed changes or new products/services can generate positive or negative effects for both organizations and consumers. Value co-creation resulting from joint action on the part of the Chapters can minimize such negative effects by using ARS to identify the facilitators of value co-creation. Payne *et al.* (2008) asserted that value co-creation is a strategic source of opportunities for organizations, because consumers bring with them the possibility of sharing their experiences in relation to the products/services of the organization or of its competitors (Bendapudi and Leone, 2003). Signatory HEIs bring with them their experiences with SDGs, and these experiences can be shared between Chapters to bring about innovation in performance and interaction.

Centobelli *et al.* (2019) pointed out that in order to explore the resources of an HEI, it is necessary to determine its existing knowledge. In this way, exploration and exploitation processes produce a dynamic learning path for the different phases of the HEI's evolution. However, for this to occur, the HEI must exploit its abilities and its physical and cultural capital. Cultural capital relates to intangible assets, such as education and knowledge, which are acquired over time and which provide people, customers and employees with the basis for social relations during exchanges (Shaw *et al.*, 2011). With regard to educational institutions, Brambilla and Damacena (2012) emphasized that for collaborative production to become value co-creation it is necessary for institutions to plan the interrelations of the participants. This planning should focus on offering a creative environment that promotes the interaction of the cultural diversity of the participants, encouraging contributions that are genuinely useful for the activities developed. In their research on the theme of value co-creation in higher education, Brambilla and Damacena (2012) investigated how the actors involved in the learning process contributed to value co-creation. With the involvement of multiple actors, such as universities, local government, communities, economic actors and civil society, value co-creation can implement sustainability in an HEI. Interactivity, especially in the form of debates, discussion forums and the exchange of experiences, is essential for the value co-creation process (Rinaldi *et al.*, 2018). The various studies that have informed the present research indicate that interactions and joint action can result in value co-creation, and that this phenomenon occurs at a specific locus of value generation. Thus, from the perspective of this study, the locus of interest is the PRME platform that Chapters use to co-create value. Section 3 describes the study design.

METHODOLOGY

This research is a quantitative research based on SNA. Its objective was to analyze whether the exchange of information between PRME Chapters contributes to the accomplishment of joint action and to value co-creation in the context of a

platform characterized by cultural and regional plurality. In order to achieve this goal, the research investigated which Chapters were most prominent in exchange of information, joint action and value co-creation.

As of September 2019, the PRME had 14 Chapters. However, in the period in which the survey was conducted (September 2018 through February 2019) there were 13 Chapters. A Google Forms data collection instrument was used to identify information exchanges between the 13 Chapters; 10 of the Chapters responded (see Table 1).

Table 1. PRME Chapters and their response to the survey

Chapter	Established/ Emerging	Responded
PRME Chapter ASEAN+	Established	Yes
PRME Chapter Australia & New Zealand	Established	No
PRME Chapter Brazil	Established	Yes
PRME Chapter CEE	Established	No
PRME Chapter DACH	Established	Yes
PRME Chapter India	Established	Yes
PRME Chapter Latin America and Caribbean (LAC)	Established	Yes
PRME Chapter MENA	Established	No
PRME Chapter Nordic	Established	Yes
PRME Chapter North America	Established	Yes
PRME Chapter UK & Ireland	Established	Yes
PRME France BeNeLux Chapter	Established	Not part of the research
PRME Chapter East Asia	Emerging	Yes
PRME Chapter Iberian (Spain and Portugal)	Emerging	Yes

The East Asia and Iberian Chapters are described as "emerging" because they are in the course of developing activities and a governance structure that are compatible with the PRME Guidelines and Recommendations; to this end, they are receiving additional support from the PRME Secretariat (UNPRME, 2019).

This research focused on three areas: (i) exchanging information, that is, sharing experiences on PRME-related projects or activities; (ii) accomplishment of joint work, that is, evaluation of the activities performed by the signatories; and (iii) value co-creation, that is, designing new activities that can be shared by signatories to provide the cultural and regional plurality necessary for implementation of the PRME.

The data collection instrument used to achieve the research objective was a four-part questionnaire:

- (i) The respondent was asked to consent to participation in the survey.
- (ii) Four items were used to determine the profile of the respondents: (a) sex, (b) Chapter performance time, (c) being a teacher and (4) performing academic functions.
- (iii) Four closed questions were followed by 13 answer options, namely a listing of the 13 Chapters (see Table 2).
- (iv) Respondents had the opportunity to give their opinion of the performance of the Chapters and to indicate how the Chapters might foster joint action that results in value co-creation.

These four questions allow a deep understanding of the constructs analyzed (Möller *et al.*, 2007; Payne *et al.*, 2008; Brambilla and Damacena, 2012; Silva *et al.*, 2015; Borgatti *et al.*, 2009; Donato *et al.*, 2017).

Table 2. Survey questions

Coding	Questions	Reference throughout the article
R1	Which Chapter(s) does this Chapter exchange information about PRME with?	Information exchange
R2	In which Chapter(s) has the exchange of information resulted in “joint working” (actions/activities/research)?	Joint action
R3	In which Chapter(s) has the exchange of information resulted in value co-creation?	Value co-creation
R4	What other Chapter(s) would it be important to maintain contact with in order to develop joint activities (actions/activities/research)?	Future joint action

Data analysis was performed using UCINET 6 software (Borgatti *et al.*, 2002). The SNA measures used in this work were degree, closeness and betweenness, because these measures accurately capture an actor’s position in terms of centrality in relation to the network, proximity to the network’s center of action (information exchange, joint performance and value co-creation) and how much each actor communicates with the others (Borgatti *et al.*, 2009). Importantly, the four networks identified in response to questions R1, R2, R3 and R4 were analyzed in a non-symmetrized manner; that is, all the Chapters mentioned were taken into account in the analysis. However, clique formation was analyzed in its validated or symmetrical form, meaning that only reciprocal relationships were considered. This is because clique is a measure that identifies secondary networks (Emirbayer and Goodwin, 1994; Wassermann and Faust, 1994; Hanneman and Riddle, 2005; Marteleto, 2010). Section 4 describes the results for the four networks. The results were drawn up based on the perception of the respondents, who are responsible for the respective chapter. In order to standardize all four aspects, it was possible to comment all questions, if they needed.

RESULTS: PRESENTATION AND DISCUSSION

The results evaluate the ARS measures for the network actors and the network measures on the basis of the four questions that made up the data collection instrument. The question about information exchange (R1) and the question about joint action (R2) were evaluated using ARS with measures for actors; the questions about value co-creation (R3) and future joint action (R4) were also evaluated using ARS, but with structural measures of the network. Of the 13 Chapters that existed in 2018, 10 answered the survey questions: of the respondents, 50% (5) were women, and their average length of service at the Chapter was three years. The survey questionnaire made it possible for respondents to report whether they were working exclusively as a faculty member, working exclusively as an academic function or working in both capacities. Of the 10 respondents, 50% (5) reported that they worked exclusively as faculty members, 30% (3) worked exclusively in an academic function and 60% (6) carried out both functions.

Social network analysis measures for network actors

ARS describes an actor’s position in terms of proximity to the network’s center of action using the measures of degree, closeness and betweenness (Marteleto, 2001; Hanneman and Riddle, 2005; Bedinand Del Pino, 2018). It is thus possible to identify the Chapters that have the highest degree, highest closeness, and greatest betweenness in PRME information exchange and joint action, which facilitates the flow of information to promote cultural plurality and regional differences in PRME implementation. The degree of network centrality distinguishes between the Chapter that receives the most connections or links (indegree) and the Chapter that searches the most (outdegree) on the network (see Figure 1).

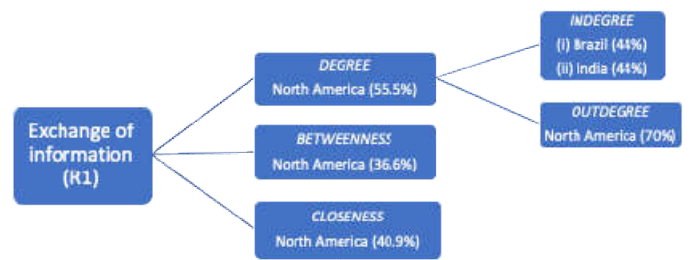


Figure 1. Measures of centrality for R1 (exchange of information)

The Chapters with the largest indegree for exchanging information about PRME were Brazil and India. The fact that more than one Chapter obtained the highest indegree value reflects those Chapters’ levels of experience and information about the specificities of PRME implementation in their region. The North America Chapter had the highest values for outdegree, degree, betweenness and closeness, which makes it the Chapter that has the most relevance in exchanging information and in influencing others to exchange information for PRME (Hanneman and Riddle, 2005; Marteleto, 2010; Silva *et al.*, 2013).

Table 3. Degree, closeness and betweenness centrality of networks formed by R1

Centrality measure	North America	Mean	Standard deviation
Degree	55.5 (%)	28.9	15.1
Betweenness	36.6 (%)	11.4	13.1
Closeness	40.9 (%)	33.8	4.5

From the results in Table 3, it is possible to observe that North America was identified as having the greatest degree by 55.5% of respondents; 36.6% identified it as having the greatest betweenness and 40.9% as having the greatest closeness of information in the network formed by the first question (R1, exchange of information). Additionally, the centrality measures for this Chapter obtained values higher than the mean for degree and the shortest distance between the measured values and the mean (Table 3). It appears that the UN Global Compact has the collaboration of the North America Chapter for achieving the SDGs by implementing and disseminating sustainable policies and practices within an inclusive and multi-stakeholder orientation (Kell, 2012; Silva *et al.*, 2013; Buono, 2014; Parkes *et al.*, 2017). According to Marteleto (2001), the relevance of the actor is a spontaneous phenomenon rather than an outcome of hierarchical organization. Thus, North America is the most relevant Chapter for the exchange of information. Figure 2 presents the

centrality measures for the item related to joint action (R2). The highest indegree values were obtained by Brazil (33%), DACH (33%), India (33%) and UK&Ireland (33%). This reflects the fact that the Chapters' different experiences, due to the specificities of each region, are relevant for joint action (Hanneman and Riddle, 2005; Marteleto, 2010; Silva et al., 2013). The Chapter that sought joint action the most was North America.

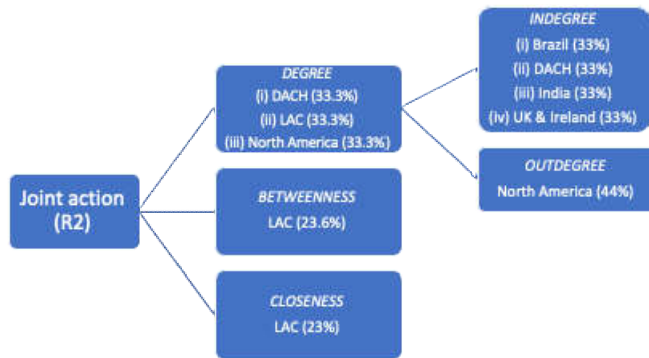


Figure 2. Measures of centrality for R2 (joint action)

LAC obtained the highest value for closeness (23%), meaning that it had the shortest distance to any other Chapter in the network; the high value indicates that this Chapter can contact other Chapters in the network relatively quickly (Hanneman and Riddle, 2005). LAC also had the highest value for betweenness (23%), the measurement of a Chapter's location on the network; this indicates that Chapters depended on LAC to obtain access to other Chapters. Thus, LAC is collaborating to put education at the center of the strategy to promote SD (Faust, 1997; Kadushin, 2012) through joint action between the Chapters.

Social network analysis measures for the network

This sub-item measures the density and reciprocity of the four networks. Density concerns the search for information exchange among the Chapters: where the density is higher, more Chapters are exchanging information with each other more intensely (Hanneman and Riddle, 2005).

Table 4. Density and reciprocity of the four networks

Question	Density (%)	Ties	Standard deviation	Reciprocity (%)
R1	18.9	170	0.39	30.7
R2	10.0	90	0.30	12.5
R3	5.6	50	0.23	0.0
R4	26.7	240	0.44	26.3

The network formed by the answers to the question about value co-creation (R3) had the lowest density (5.56%) and the lowest reciprocity (0%). Therefore, there was value co-creation among the Chapters, but there was no reciprocity among the respondents. When graphs have low connectivity between nodes, density will be low, because density is the result of the relationship between nodes and vertices; in contrast, graphs with high connectivity between nodes have high density. Figure 3 shows that the Nordic, East Asia and Iberian Chapters did not offer value co-creation, whereas the other Chapters either co-created through joint activity or established the necessary contact. The PRME provide a platform for interaction and engagement, and these are

requirements for value co-creation (Möller et al., 2007; Payne et al., 2008; Brambilla and Damacena, 2012; Silva et al., 2015; Donato et al., 2017).

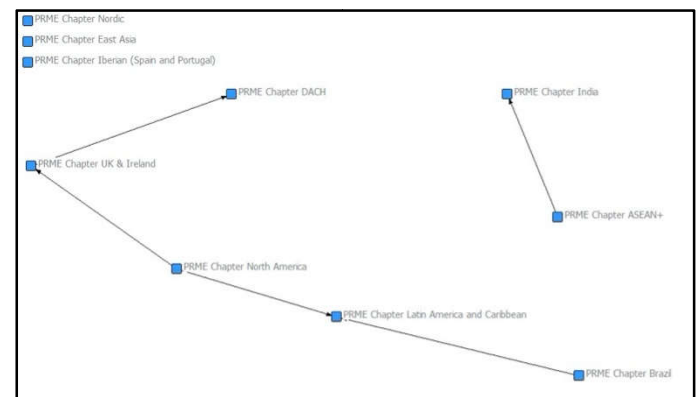


Figure 3. Network sociogram for value co-creation (R3) (UCINET)

There are cases where Chapters did not seek each other but value co-creation, as there is a possibility where there was no regional difficulty in implementing the PRME principles. However, in those cases value co-creation has not occurred, as it is by definition a shared, collaborative process among stakeholders who generate value through interactivity collaborative process among stakeholders who generate value through interactivity (Galvagno and Dalli, 2014). Information sharing between HEIs and Chapters is a prerequisite of value co-creation. Value co-creation depends on the quality of information, knowledge, skills and other operative resources, because it is a dynamic, interactive, nonlinear process (Payne et al., 2008; Galvagno and Dalli, 2014). Thus, an HEI that generates value co-creation is exploiting its skills and its physical and cultural capital (Centobelli et al., 2019). The processes of value co-creation draw on the experiences of each Chapter in assisting their region with a series of activities that the HEI performs to achieve a certain SDG-related goal. In this context, interactions between the Chapters, participation in the development of materials and joint actions form part of the PRME platform. The way in which the skills of value co-creation are developed depends on the specific experiences of individual Chapters. The values presented in the structural measures for value co-creation (R3) were low compared to the other measures. This indicates that there is a need for greater encouragement of interaction between the Chapters in the exchange of information and the performance of joint activity.

In their comments on the question about value co-creation, some respondents mentioned factors that may stimulate value co-creation. Their comments can be summarized as follows:

- (i) Meetings with mediators, the annual forum, regional cross-chapter events and formal PRME information exchange (digital media only) are opportunities for value co-creation. Prahalad and Ramaswamy, 2004; Ramaswamy (2010) and Brambilla and Damacena (2012) emphasized that value co-creation is a process of construction of results, debates, discussion forums and exchange of experiences by those involved.
- (ii) In order to develop a more concrete short-term and long-term work plan, appropriate governance structures are needed to establish a council representing the participants. As noted by Brambilla

and Damacena (2012) and Bedin and Del Pino (2018), for collaborative production to become co-creation of value there must be a methodological plan that promotes the interrelationship of the participants. This plan should focus on providing a creative environment that fosters the interaction of the cultural diversity of the participants, resulting in genuinely useful contributions to the activities performed.

- (iii) Requirements include the evaluation of educational approaches to sustainable education, and SDG educational map, teaching materials and community engagement activities. In meeting these demands, the skills and their physical and cultural capital of each Chapter, such as its education and knowledge, will contribute to the co-creation of value (Shaw *et al.*, 2011; Centobelli *et al.*, 2019).

The PRME aims to stimulate the continuous process of improvement of HEIs to achieve the SDGs by updating the program contents, research and teaching methods of the signatories. The signatories also make a commitment to sustainable and inclusive practices (Alcaraz and Thiruvattal, 2010; Parkes *et al.*, 2017). However, incorporating such practices and making them inclusive requires respect for the norms, values and symbols that differentiate the culture of each society (Northouse, 2007; Hofstede, 2011). Therefore, value co-creation between Chapters corroborates for PRME achieving its goals. Finally, the network for the question about interest in future joint action (R4) had the highest density (26.7%), of all the networks (see Table 4). However, its reciprocity was the second highest (26.3%), indicating that interest in maintaining contact in order to develop joint action was reciprocated in just over 26% of cases.

ARS measures for network and cliques: Some Chapters have a structure with dense connections, and ARS identifies these in the form of secondary networks, also called subgroups. Such Chapters may find it easier to work together because of their proximity to the secondary network. The measure of secondary networks is clique, and a subgroup can influence the network to which it belongs as a whole (Emirbayer and Goodwin, 1994; Wassermann and Faust, 1994; Hanneman and Riddle, 2005; Marteleto, 2010). As mentioned in Section 3, in this study clique formation was analyzed in its validated or symmetrical form, meaning that only reciprocal relationships were considered. Two networks stood out in terms of clique formation: those for R1 (information exchange) and those for R4 (future joint action). The responses to R4 showed the highest number of Chapters per clique and the highest number of cliques.

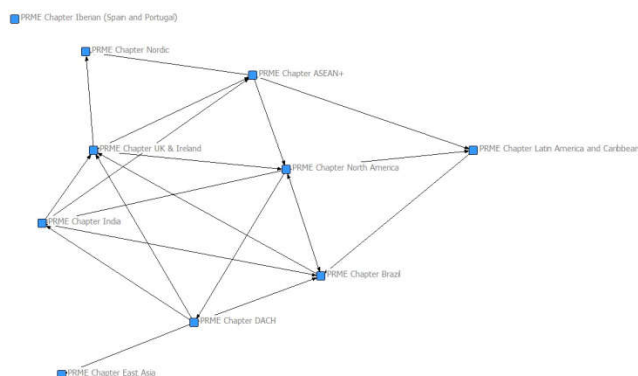


Figure 4. Network sociogram for future joint action (R4) (UCINET)

Figure 4 shows the formation of five cliques, the smallest consisting of three Chapters: ASEAN +, Nordic and UK & Ireland. The biggest clique was formed by five Chapters: Brazil, DACH, India, North America and UK & Ireland. Finally, North America was the Chapter that participated in the highest number of cliques, as it was part of four of the five cliques identified. The fact that North America participated in four out of the five cliques corroborates the suggestion of Wassermann and Faust (1994) and Marteleto (2001) that the relationship between the actors of a clique is more cohesive than other relationships. This result is also in line with the findings of Emirbayer and Goodwin (1994), who observed that a clique can be directly or indirectly linked to the other actors of the network. This section has presented and discussed the findings about information exchange among the PRME Chapters and how it contributes to joint action and value co-creation on a platform that offers cultural and regional plurality for the implementation of the PRME. Section 5 presents the final considerations, limitations of this study and suggestions for future studies.

Conclusions

In 2007, the UN and Global Compact formulated six principles for collaboration among signatory HEIs in order to develop responsible leadership through networking to implement the SDGs in their areas. In 2013, Chapters were created to act from the UNPRME platform. The role of the signatory HEIs, respecting cultural and regional plurality, is to contribute to the training and development of responsible managers in their regions. Raise the profile of sustainability in signatory HEIs is a challenge facing HEIs, and Chapters have the ability to help meet this challenge by collaborating to promote the cultural plurality of the signatory HEIs. This research fulfilled its objective of analyzing the exchange of information between PRME Chapters and verified that contributed to joint action and value co-creation on a platform that presents cultural plurality. The cultural plurality of the signatory HEIs promoted interaction between the Chapters; Brazil and India were the Chapters with the highest indegree. Meanwhile, four Chapters were observed to have the largest indegree for information exchange resulting in joint action and/or activity; these were Brazil, DACH, India and UK & Ireland. This is evidence that these Chapters' different experiences, attributable to the specificities of each region, are relevant for exchange information and joint action. North America has been identified as the most relevant Chapter for fostering information exchange among the Chapters, and LAC was identified as the most relevant for fostering joint action. Chapters play a major role in enabling signatories to achieve the SDGs by embracing the core of their structure's SD of responsible managers.

Interactions and joint action between Chapters on the PRME platform can result in value co-creation. However, co-creation value there is necessary stimulation in order to occur with greater intensity so that the density and reciprocity of the networks is higher. The Chapters themselves have important insights into how to achieve this, and their comments corroborate the theory of value co-creation. The density of the connections that the North America Chapter had with other Chapters may make it easier to work together, because North America can influence the network to which it belongs as a whole. Exchange of information and realization of joint action result in value co-creation, and this is useful for achieving the SDGs in order to train responsible managers in HEI

signatories worldwide and to promote cultural and regional plurality. This study has found that the main tool that the PRME and Global Pact have is the Chapters, which collaborate to achieve the objectives through their networking actions. Also, these interactions among the Chapters can effectively contribute to support signatory HEIs' actions towards a more responsible education. The study's limitation is the quantity of Chapters involved in the research, achieving 71,4% of participation (10 from total of 14). The indication of further research is to conduct interviews with those responsible for Chapters with open questions about development promoting innovative activities and projects linked to the PRME.

REFERENCES

- Alcaraz, J. M., and Thiruvattal, E. (2010), "An interview with Manuel Escudero The United Nations' principles for responsible management education: a global call for sustainability". *Academy of Management Learning & Education*, 9(3), 542-550. DOI: 10.5465/amle.9.3.zqr542
- Bedin, E. and Del Pino, J. C. (2018), "Aprendizagem colaborativa nas redes sociais e a qualificação dos processos de ensino e aprendizagem". *Tecnologias de Informação e Comunicação - Perspetivas e Desafios*, 14(47), 2018. DOI: 10.25755/int.7138
- Bendapudi, N. and Leone, R. P. (2003), "Psychological implications of customer participation in co-production". *Journal of Marketing*, 67(1), 14-28. DOI: 10.1509/jmkg.67.1.14.18592
- Borgatti, S. P., Everett, M. G. and Freeman, L. C. (2002) *Ucinet for windows: software for social network analysis*. Harvard: Analytical Technologies.
- Borgatti, S. P., Mehra, A., Brass, D. J. and Labianca, G. (2009), "Network analysis in the social sciences". *Science*, 323, 892-323. DOI: 10.1126/science.1165821.
- Brambilla, F. R. and Damacena, C. (2012), "Cocriação de valor no ensino superior privado: uma análise etnometodológica com alunos de administração de uma universidade do sul do Brasil". *Administração: ensino e pesquisa*, 13(3), 455-489. DOI: 10.13058/raep.2012.v13n3.86
- Buono, A. F. (2014), "Setting the stage: Facilitating global partnerships for a better world". *SAM Advanced Management Journal*, 79(4), 4-7. Available at: <https://link.gale.com/apps/doc/A398523876/AONE?u=usc&sid=AONE&xid=655811de>. Accessed 29 April. 2019.
- Buono, A., Haertle, J. and Kurz, R. (2015), "UN-Supported Principles for Responsible Management Education (PRME): Global Context, Regional Implementation, and the Role of Signatories", *The UN Global Compact: Fair Competition and Environmental and Labour Justice in International Markets (Advances in Sustainability and Environmental Justice, Vol. 16)*, Emerald Group Publishing Limited, pp. 1-15. DOI: 10.1108/S2051-503020140000016001
- Camargo, M. A. C. and Ferreira, A. V. (2013), "Redes sociais: um estudo das relações em sala de aula de um curso de pós graduação". *Perquirere*, 10(2), 169-189. Available at: <https://revistas.unipam.edu.br/index.php/perquirere/issue/download/102/Revista%20Perquirere%20n.%2010%2C%20vol.%202%2C%20dez.%202013>. (accessed may 2019).
- Centobelli, P., Cerchione, R., Esposito, E. and Shashi (2019), "Exploration and exploitation in the development of more entrepreneurial universities: a twisting learning path model of ambidexterity", *Technological Forecasting and Social Change*, Vol. 25 No. 9, pp. 3679-3701. DOI: 10.5585/remark.v11i3.2369
- Cooper, S., Parkes, C. and Blewitt, J. (2014), "Can accreditation help a leopard change its spots? Social accountability and stakeholder engagement in business schools". *Accounting, Auditing & Accountability Journal*, 27(2), 234-258. DOI: 10.1108/AAAJ-07-2012-01062
- Donato, H. C., Farina, M. C., Donaire, D. and SantoS, I. C. D. (2017), "VALUE CO-CREATION AND SOCIAL NETWORK ANALYSIS ON A NETWORK ENGAGEMENT PLATFORM". *Revista de Administração Mackenzie*, 18(5), 63-91. DOI: 10.1590/1678-69712017/administracao.v18n5p63-91
- Emirbayer, M. and Goodwin, J. (1994), "Network Analysis, Culture, and the Problem of Agency," *American Journal of Sociology* 99, no. 6: 1411-1454. DOI: 10.1086/230450
- Faust, K. (1997) *Centrality in affiliation network*. *Social Networks*, 19(2), 157-191.
- Galvagno, M. and Dalli, D. (2014), "Theory of Value Co-Creation: A Systematic Literature Review". *Managing Service Quality*, 24, 643-683. DOI: 10.1108/MSQ-09-2013-0187
- Gitsham, M. and Clark, T. S. (2014), "Market demand for sustainability in management education". *International Journal of Sustainability in Higher Education*, 15(3), 291-303. DOI: 10.1108/ijsh-12-2011-0082
- Granovetter, Mark. (1985). Economic action and social structure: the problem of embeddedness. *American Journal of Sociology*, 91(3), 481-510. doi: 10.1002/9780470755679.ch5.
- Haertle, J., Parkes, C., Murray, A. and Hayes, R. (2017), "PRME: Building a global movement on responsible management education". *The International Journal of Management Education*, 15(2), 66-72. DOI: 10.1016/j.ijme.2017.05.002
- Hanneman, R. A. and Riddle, M. (2005), "Introduction to social network methods". Riverside, CA: University of California. Available at: <http://faculty.ucr.edu/~hanneman/nettext/>. Accessed 30th June 2019.
- Hofstede, G. (2011), "Dimensionalizing Cultures: The Hofstede Model in Context". *Psychology and Culture*, 2(1). DOI: 10.9707/2307-0919.1014
- Kadushin, C. (2012) *Understanding social networks: theories, concepts, and findings*. New York: Oxford University Press.
- Kell, G. (2012), "12 Years Later: Reflections on the growth of the UN global compact". *Business & Society*, 52(1), 31-52. DOI: 10.1177/0007650312460466
- Kolb, M., Fröhlich, L. and Schmidpeter, R. (2017), "Implementing sustainability as the new normal: Responsible management education—From a private business school's perspective". *International Journal of Management Education*, 15(2), 280-292. DOI: 10.1016/j.ijme.2017.03.009
- Leal Filho, W., Brandli, L. L., Becker, D., Skanavis, C., Kounani, A., Sardi, C., ... Marans, R. W. (2018), "Sustainable development policies as indicators and pre-conditions for sustainability efforts at universities". *International Journal of Sustainability in Higher Education*, 19(1), 85-113. doi:10.1108/ijsh-01-2017-0002
- Marteleto, R. M. (2001), Análise de redes sociais: aplicação nos estudos de transferência da informação. *Ciência da*

- informação, 30(1), 71-81. Available at: www.scielo.br/pdf/ci/v30n1/a09v30n1.pdf.
- Möller, K., Rajala, R. and Westerlund, M. (2007), "Service myopia? A new recipe for client-provider value creation". In The Berkeley-Tekes service innovation conference (pp. 42-51). Available at: https://journals.sagepub.com/doi/pdf/10.2307/41166444?casa_token=T442b_wPoHEAAA-AA:-SZoyRrSw6nAUQDMCLsQK8bVHvwtEU-OzhJdbRuZmzBjHi9fTusGKilsdEeZ5bN90NIWgmrqbB-VWbMQ Accessed 29 April 2019.
- Northouse, P. G. (2007) *Leadership: Theory and Practice*. 4th ed. Thousand Oaks, CA: Sage Publications, 2007.
- Parkes, C., Buono, A. F. and Howaidy, G. (2017), "The Principles for Responsible Management Education (PRME): The first decade—What has been achieved? The next decade—Responsible Management Education's challenge for the Sustainable Development Goals (SDGs)". *The international journal of management education*, 15(2), 61-65. DOI: 10.1016/j.ijme.2017.05.003
- Payne, A. F., Storbacka, K. and Frow, P. (2008), "Managing the co-creation of value". *Journal of the academy of marketing science*, 36(1), 83-96. DOI: 10.1007/s11747-007-0070-0
- Pralhad, C. K., and Ramaswamy, V. (2004), Co-creation experiences: The next practice in value creation, *Journal of interactive marketing*, 18(3), pp 5-14.
- Presa, C.L.; Díaz, E.A.; García, M.M.R.; Carril, I.F.; Martínez, D.B. and Martínez, E.F. (2018), "Social Network Analysis and Resilience in University Students: An Approach from Cohesiveness". *International Journal of Environment Research and Public Health*, 15, 1-13. DOI: 10.3390/ijerph15102119.
- PRME Secretariat (2016), "The UN Sustainable Development Goals realised through responsible management education: Strengthening PRME's network and aligning with UN priorities". Available at: <http://www.unprme.org/resource-docs/160517PRMEStrategicReviewFINAL.pdf> Accessed Nov 2018.
- Ramaswamy, V. (2010), "Competing through co-creation: innovation at two companies". *Strategy & leadership*, 38(2), 22-29. DOI: 10.1108/10878571011029028
- Ramaswamy, V. and Guillard, F. (2010), "Building the co-creative enterprise". *Harvard business review*, 88(10), 100-109. Available at: https://www.sonntag-consulting.ch/pdf/Ramaswamy%20V%20&%20Guillard%20F_%20Building%20the%20Co-Creative%20Enterprise_HBR%202010.pdf Accessed 30th June 2019.
- Rinaldi, C., Cavicchi, A., Spigarelli, F., Lacchè, L. and Rubens, A. (2018), "Universities and smart specialisation strategy: From third mission to sustainable development co-creation". *International journal of sustainability in higher education*, 19(1), 67-84. DOI: 10.1108/IJSHE-04-2016-0070
- Shaw, G., Bailey, A. and Williams, A. (2011), "Aspects of service-dominant logic and its implications for tourism management: Examples from the hotel industry". *Tourism management*, 32(2), 207-214.
- Silva, A. S., Avelar, A. B. A. and Farina, M. C. (2014), "The nurse as an integration agent in handoff: A social networks analysis perspective". *African Journal of Business Management*, 8(19), 922-936. DOI: 10.5897/ajbm2014.7476
- Silva, A. S., Farina, M. C., Gouvêa, M. A. and Donaire, D. (2015), "A model of antecedents for the co-creation of value in health care: An application of structural equation modeling". *Brazilian Business Review*, 12(6), 121-149. DOI: 10.15728/bbr.2015.12.6.6
- Srebotnjak, T. and Norgaard, L. (2017), "Mapeando os esforços de sustentabilidade nas faculdades de Claremont", *International Journal of Sustainability in Higher Education*, vol. 18 No. 7, pp. 1230-1243. DOI: 10.1108/IJSHE-12-2015-0206
- United Nations (2019), Sustainable Development Goals (SDGs) Available at: <http://www.un.org/sustainabledevelopment/sustainable-development-goals/>. Accessed 30th April 2019.
- United Nations Global Compact (2007) *The Principles for Responsible Management Education*, United Nations, New York, NY.
- UNPRME (2019), PRME 2017 Annual Report and 2018 Outlook. Available at: <https://www.unprme.org/resource-docs/2017AnnualReportand2018Outlook.pdf>. Accessed 30th April 2019.
- Wasserman, S. and Faust, K. (1994) *Social network analysis: method and applications*. Cambridge: Cambridge University Press.
