

# Factors that Impede the Formation of Self-Directed work teams in Mexican Organizations

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**Abstract** — *The most efficient work teams are self-directed work teams (SDWTs). In the United States, seventy-five percent of medium and large companies use SDWTs. The United States has a higher economic performance than Mexico. In Mexico, SDWTs have not been successful. The objective of this document is to identify the factors that impede the formation of SDWTs in Mexican organizations. Qualitative research was carried out with a cross-correlational design. The sample consisted of 32 employees from Mexican companies. The chi-square statistical test was used to evaluate the relationship between the variables. The dependent variable was the formation of the SDWTs, and the independent variables were the multidisciplinary knowledge of the individuals, the empowerment of team members and multidisciplinary work teams (work teams with members from a variety of disciplines). The results showed that only the multidisciplinary knowledge of the individuals and multidisciplinary work teams are dependent variables in the formation of SDWTs. Therefore, the conclusion is that empowerment has been exercised in Mexican companies and it is not an impediment to the formation of SDWTs.*

**Keywords**— *Empowerment, Mexican organizations, Multidisciplinary knowledge of the individuals, Multidisciplinary work teams, Self-directed work teams.*

## I. INTRODUCTION

Work teams have been an element that drives the performance of organizations [1]. Unfortunately, not all work teams have generated benefits for the organization, and, in some cases, they have even become a burden on the organization.

The competitiveness of organizations relates to the effectiveness of the teams [1]. The structure and management of the teams determine their efficiency [2]. However, the current structures are traditional and require a change due to the dynamic nature of work environments of businesses today [3].

The most efficient work teams are self-directed work teams [4-6]. Self-directed work teams are “non-hierarchical groups of individuals with different and complementary experiences and knowledge to whom they are responsible for a specific job” [7]. Therefore, work teams have particular characteristics (Table 1).

Table.1: Particular characteristics of SDWTs

Author	Multidisciplinary knowledge of the individuals	Empowerment	Multidisciplinary teams
Johnson, Hollenbe.	o		o

DeRue, Barnes, and Jundt, 2013 [8].			
Wang, & Hicks, 2015 [9].	◦		◦
Robbins, 2013 [10].	◦	◦	◦
Millikin, Hom, and Manz, 2010 [11].		◦	◦
Lambe, Webb, and Ishida, 2009 [12].		◦	
Blanchard, 2007 [13].			
Hopp, 2004 [14].		◦	
Roy, 2003 [15].		◦	

The literature on self-directed work teams marks its particular characteristics. The members of the self-directed works teams are multidisciplinary and interrelate their knowledge to solve problems [16]. This collective knowledge of self-directed work teams generates improvements and innovation [16].

The members of the SDWTs execute their tasks, control the results obtained and take responsibility for the innovations achieved [17]. Therefore, the tasks performed by the self-directed work teams are interdependent and benefit from the synergy of the group [5].

Flexible work increases productivity and improves competitiveness. SDWTs operate through flexible jobs to generate a competitive advantage [6]. The autonomy of self-directed work teams allows them to monitor their environment interactively and quickly change their strategies to adapt to the dynamic environment and improve performance [8].

**The Culture of the United States and Mexico**

The United States is the second most competitive country worldwide [18]. Seventy-five percent of medium and large companies in the United States use a structure based on self-directed work teams [19].

In Mexico, there is a lack of formation of self-directed work teams in organizations. The majority of the organizations where the SDWTs operate are transnational

companies from the United States that permeate their organizational cultures. Some companies where they work in this way are PepsiCo and GM. A Mexican company that has acquired the scheme of SDWTs is Bimbo. However, only a minority of Mexican companies have implemented structures based on SDWTs.

Trejo (2009) points out that the primary challenge for Mexico is the formation of SDWTs. To form them, it is necessary to have an atmosphere with trust, leadership, excellent communication and a clear understanding of the objectives. Moreover, each team member must exert their full effort to maximize their strengths [20].

The cultures of the United States and Mexico are different (Table 1). The culture of a country influences the effectiveness of empowerment [21, 22]. Empowerment is a characteristic of self-directed work teams.

*Table.2: Differences between the United States and Mexico*

	United States	Mexico
Economic Development GDP per capita (2016 USD)	57,436.4	8,554.6
Power Distance Range 0-100	40	81
Individualism / Collectivism Range 0-100	91	30

Sources: [18, 23].

The United States has a better economic performance compared to Mexico. The GDP of the United States is 57, 436.4 USD per year, and for its part, Mexico has a GDP of 8,554.6 USD [18].

Mexico has a power distance of 81 on the Hofstede scale [23]. Therefore, Mexico is a hierarchical population. Individuals in Mexico understand that everyone has a position and subordinates wait for the indications from their superiors. For its part, the United States has a power distance of 40 on the Hofstede scale [23]. Therefore, the hierarchy in the United States is not essential for the completion of activities.

Mexico has a score of 30 in individualism on the Hofstede scale [23]. Mexico is a collectivist society. Individuals have a long-term commitment to group members. Mexican employees are loyal to each other. The United States is an individualist country with a score of 91 on the Hofstede scale [23]. Individualism is the highest value in the United States [24]. Therefore, employees are self-sufficient and proactive [23].

**II. METHOD**

The instrument used for data collection was a questionnaire [25]. The questionnaire consisted of 16 items covering the three dimensions respectively. A multivariable analysis was conducted of a dependent variable (formation of self-directed work teams) and three independent variables (multidisciplinary knowledge of the individuals, empowerment, and multidisciplinary work teams), of which six, five, and five items were included respectively (Table 3).

*Table.3: Classification of the dimensions that affect the formation of self-directed work teams*

Multidisciplinary knowledge of the individuals	Empowerment	Multidisciplinary work teams
They have knowledge different from their area.	They have the authority to make changes in their area without having repercussions with their boss.	The members of the work teams are made up of personnel with different knowledge.
The knowledge provided by the company (institution) helps them make decisions.	Their boss allows them to comment on their area of work.	The collaborators of the different areas meet to solve problems in a specific area.
They have knowledge of maintenance regarding their work area.	Their boss allows them to make decisions in their area of work	The members of their work team recognize that the tasks are interdependent.
They have knowledge of quality regarding their work area.	Their boss allows them to stop activities if they do not comply with any work procedure.	They have meetings with staff from other departments.
They have knowledge of occupational safety in their work area.	If there is a problem in their area of work, they can make decisions to improve the situation.	Solutions to problems in their work area are obtained by including the knowledge of all team members.
They have knowledge of productivity in their work area.		

The Questionnaire used the Likert scale. The Likert scale showed the beliefs and attitudes of the respondents [26]. The response options were from one to five where one does not influence the dimension in the formation of the self-directed work teams, and five reflects the influence of the aspect in the formation of the self-directed work teams.

To verify the reliability of the instrument, 32 employees from different companies in the state of Veracruz in Mexico answered a pilot questionnaire using the designed instruments. The instrument was validated through the Pearson correlation (Table 4) and the internal alpha consistency method of Cronbach (Table 5) [27].

*Table.4: Validation of the instrument through the Pearson correlation.*

	I 1	I 2	I 3	I 4	I 5	I 6	I 7	I 8	I 9	I 10	I 11	I 12	I 13	I 14	I 15	I 16
I 1	1															
I 2	0	1														
I 3	0	0	1													
I 4	0	0	0	1												
I 5	0	0	0	0	1											
I 6	0	0	0	0	0	1										
I 7	0	0	0	0	0	0	1									
I 8	0	0	0	0	0	0	0	1								
I 9	0	0	0	0	0	0	0	0	1							
I 10	0	0	0	0	0	0	0	0	0	1						
I 11	0	0	0	0	0	0	0	0	0	0	1					
I 12	0	0	0	0	0	0	0	0	0	0	0	1				
I 13	0	0	0	0	0	0	0	0	0	0	0	0	1			
I 14	0	0	0	0	0	0	0	0	0	0	0	0	0	1		
I 15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	
I 16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

8	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	4	5	5	6	5	5	5	.	.	.	.	.	.	.	.	.	.	.
	6	5	6	7	0	0	7	.	.	.	.	.	.	.	.	.	.	.
	6	5	7	3	9	5	2	.	.	.	.	.	.	.	.	.	.	.
I	0	0	0	0	0	0	0	0	1	.	.	.	.	.	.	.	.	.
9	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	4	6	4	6	6	5	4	5	.	.	.	.	.	.	.	.	.	.
	2	1	6	5	0	6	3	5	.	.	.	.	.	.	.	.	.	.
	9	9	0	7	5	0	9	2	.	.	.	.	.	.	.	.	.	.
I	0	0	0	0	0	0	0	0	0	1	.	.	.	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
0	4	5	4	5	4	4	2	6	4	.	.	.	.	.	.	.	.	.
	3	5	7	4	4	0	9	9	2	.	.	.	.	.	.	.	.	.
	6	2	7	9	1	6	9	9	6	.	.	.	.	.	.	.	.	.
I	0	0	0	0	0	0	0	0	0	0	1	.	.	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
1	4	5	5	7	5	5	6	5	6	4	.	.	.	.	.	.	.	.
	7	3	0	0	7	1	0	9	8	4	.	.	.	.	.	.	.	.
	2	6	9	0	7	7	5	0	6	4	.	.	.	.	.	.	.	.
I	0	0	0	0	0	0	0	0	0	0	0	1	.	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
2	5	5	3	5	4	4	4	5	5	6	6	.	.	.	.	.	.	.
	4	2	7	5	9	5	9	8	2	3	5	.	.	.	.	.	.	.
	5	9	7	1	6	7	7	4	1	1	1	.	.	.	.	.	.	.
I	0	0	0	0	0	0	0	0	0	0	0	0	1	.	.	.	.	.
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
3	3	2	3	5	4	4	4	5	3	5	4	4	.	.	.	.	.	.
	5	6	4	2	7	4	9	4	3	0	2	2	.	.	.	.	.	.
	7	2	3	2	4	6	5	5	2	4	2	0	.	.	.	.	.	.
I	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.	.	.	.
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
4	4	6	4	5	7	4	4	6	6	5	5	7	6	.	.	.	.	.
	5	5	7	5	1	7	8	3	0	9	8	3	0	.	.	.	.	.
	0	2	4	3	1	2	3	5	1	1	2	2	7	.	.	.	.	.
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.	.	.
5	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
	5	5	4	4	5	4	3	4	5	4	4	4	2	4	.	.	.	.
	5	4	7	0	2	9	8	0	4	1	1	9	7	8	.	.	.	.
	3	4	3	8	3	3	3	4	0	3	9	4	9	5	.	.	.	.
I	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	.	.
1	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.
6	3	4	4	4	4	4	4	5	2	5	3	3	5	5	2	.	.	.
	9	4	5	5	9	8	2	8	9	0	4	9	5	7	7	.	.	.
	2	5	1	0	9	8	9	4	2	6	1	3	5	9	3	.	.	.

Table.5: Reliability statistics

Alpha of Cronbach	The number of items
0.940	16

A sample of 32 companies was selected from different lines of business. The companies surveyed were all from different states in Mexico (Table 6).

Table.6: Characteristic of the companies to which the questionnaire participants belong

Company	Number	Percentage
Large	22	68.75
Medium	6	18.75
Small	4	12.5
Total	32	100
Line of business	Number	Percentage
Construction	13	40.625
Pharmaceutical	1	3.125
Education	6	18.75
Iron and steel industry	1	3.125
Foods	5	15.625
Government	4	12.5
Gas	2	6.25
Total	32	100
State	Number	Percentage
Puebla	10	31.25
Mexico City	7	21.875
Tabasco	1	3.125
Veracruz	2	6.25
Hidalgo	9	28.125
State of Mexico	3	9.375
Total	32	100

The chi-square statistical test was used to analyze the relationship of dependence between the formation of self-directed work teams (dependent variable) and the multidisciplinary knowledge of the individuals, the empowerment of the workers, and the multidisciplinary work teams (independent variables). The chi-square statistical test is an independence test that helps determine if two or more categorical variables are associated [28].

III. RESULTS

Table.7: Chi-square Analysis (p = 0.05)

Dependent variable – the formation of self-directed work teams in Mexican organizations			
Independent Variables	Chi-square calculated or observed	Theoretical Chi-square	Results
Multidisciplinary knowledge of the individuals	17.876	3.845	The Multidisciplinary knowledge of the individuals is statistically

			significant.
Empowerment of the employees	0.613	3.8415	The empowerment that employees possess is not statistically significant.
Multidisciplinary work teams	14.385	3.8415	The presence of multidisciplinary work teams is statistically significant.

The calculated chi-square is distant from the theoretical chi-square and outside the normal Pearson curve for 1 degree of freedom. The dependence is considered a p-value of almost zero and an independence with a p-value of 1 (Figure 1, 2 and 3).

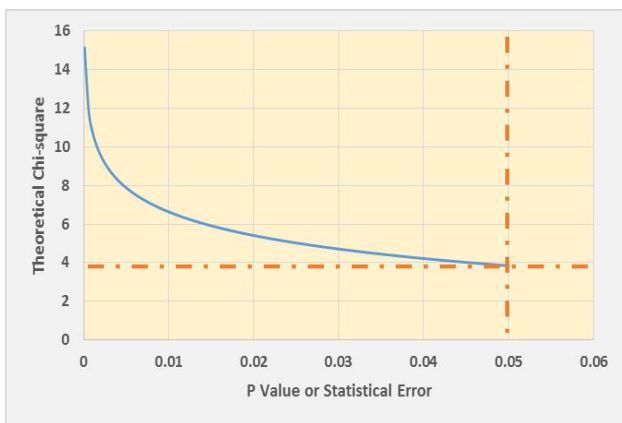


Fig.1: Graph of the theoretical inverse function: p-value vs theoretical chi-square of 1 degree of freedom.

For a 95% confidence for independence, the intercession presented by the theoretical chi-square is (0.05, 3.84); therefore, 5% of statistical error was considered for dependence (Figure 1).

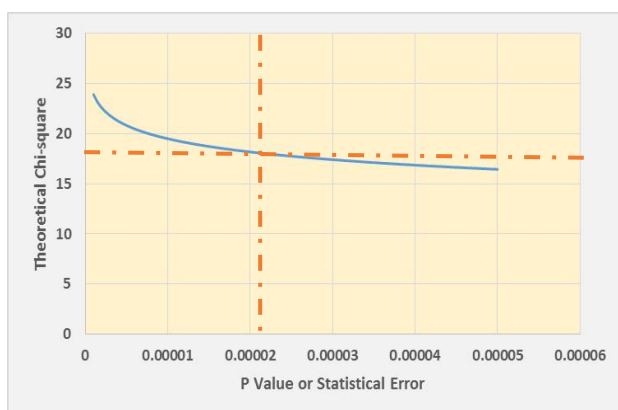


Fig.2: Graph of the theoretical inverse function: p-value vs observed chi-square, independent variable multidisciplinary knowledge of the individuals of 1 degree of freedom.

The intercession of p-value and observed chi-square is (0.00002354, 17.8790357). Therefore, it shows almost 100% confidence for the dependence of the variables: multidisciplinary knowledge of the individuals (independent variable) and the formation of the SDWTs (dependent variable) (Figure 2).

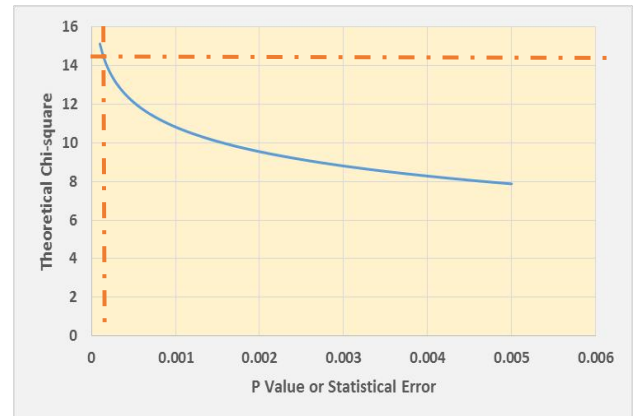


Fig.3: Graph of the theoretical inverse function: p-value vs observed chi-square, independent variable multidisciplinary work teams of 1 degree of freedom.

The intercession of the p-value and observed chi-square is (0.000149, 14.384803). Therefore, it shows an almost 100% confidence for the dependence of the variables: multidisciplinary work teams (independent variable) and the formation of the SDWTs (dependent variable) (Figure 3).

#### IV. CONCLUSIONS

The results revealed that the factors that impede the formation of SDWTs in Mexican organizations are the lack of multidisciplinary knowledge of the individuals and the lack of multidisciplinary work teams. On the other hand, the empowerment of these employees from these Mexican companies does not influence the formation of self-directed work teams. The tests were performed with a 95% confidence.

Technical knowledge is essential for the performance of an organization. The most competitive countries are at the top of the indicators of education and efficiency of the labor market. Mexico is in position 80 and 70 respectively of 135 countries [18]. Therefore, Mexico needs to train its workers with multidisciplinary knowledge for complex tasks in order to respond quickly to changes in their work environments. The work teams that are formed in the Mexican organizations must be multidisciplinary, that is, the members must be experts in different areas than their teammates.

Despite Mexico having a high score on the scale of power distance index [23], this study has shown that Mexican workers have empowerment. The leaders of Mexican organizations are delegating authority to their employees.



Therefore, the empowerment of these Mexican employees does not influence the formation of self-directed work teams.

The limitations of the present investigation were several. The sample was made only in Mexico. The sample was of 32 employees from Mexican companies from different states of the Mexican Republic. The questionnaire was applied to one collaborator per company.

Future studies could be to analyze other factors that prevent the formation of (SDWTs) in other countries. On the other hand, the United States and Mexico are different nations. Therefore, the different dimensions between countries can be studied for the formation of self-directed work teams.

### REFERENCES

- [1] Alavi, M., & Tiwana, A. (2002). Knowledge integration in virtual teams: The potential role of KMS. *Journal of the Association for Information Science and Technology*, 53(12), 1029-1037.
- [2] Cummings, T. G., & Worley, C. G. (2007). *Desarrollo organizacional y cambio* (No. Sirsi) i9789706866349).
- [3] Rico, R., Alcover de la Hera, C. M., & Taberner, C. (2010). Efectividad de los equipos de trabajo: Una revisión de la última década de investigación (1999-2009). *Revista de Psicología del Trabajo y de las Organizaciones*, 26(1), 47-71.
- [4] Palamary, R. E. (2012). "Formación de equipos de alto desempeño y estrategias gerenciales en proyectos de empresas publicitarias", *Estudios Gerenciales*, vol. 28, núm. 22, enero-marzo, pp. 69-81.
- [5] Martínez Martínez, A., García Gamica, A., & Santos Navarro, G. (2014). Nuevas formas de organización laboral en la industria automotriz: los equipos de trabajo en General Motors, Complejo Silao. *Análisis Económico*, 29(70).
- [6] Rubio M.A., Gutiérrez S. B., Montoya M. J., (2010). Los equipos autodirigidos como ventaja competitiva. *Leadership*. 7 (24) 22-23.
- [7] Johnson, M. D., Hollenbeck, J. R., DeRue, D. S., Barnes, C. M., & Jandt, D. (2013). Functional versus dysfunctional team change: Problem diagnosis and structural feedback for self-managed teams. *Organizational Behavior and Human Decision Processes*, 122(1), 1-11.
- [8] Wang, J., & Hicks, D. (2015). Scientific teams: Self-assembly, fluidness, and interdependence. *Journal of Informetrics*, 9(1), 197-207.
- [9] Robbins, S. (2013). *Comportamiento organizacional* (10ª ed.). México: Pearson.
- [10] Millikin, J. P., Hom, P. W., & Manz, C. C. (2010). Self-management competencies in self-managing teams: Their impact on multi-team system productivity. *The leadership quarterly*, 21(5), 687-702.
- [11] Lambe, C. J., Webb, K. L., & Ishida, C. (2009). Self-managing selling teams and team performance: The complementary roles of empowerment and control. *Industrial Marketing Management*, 38(1), 5-16.
- [12] Blanchard, K. (2007). *Liderazgo al más alto nivel: cómo crear y dirigir organizaciones de alto desempeño*. Bogotá: Grupo Editorial Norma.
- [13] Holpp, L. (2004). *Dirija el mejor equipo de trabajo*. Madrid: McGraw-Hill, Interamericana de España.
- [14] Roy, M. (2003). Self-directed workteams and safety: a winning combination?. *Safety Science*, 41(4), 359-376.
- [15] Andrés, M., R.; Broncano, S., G.; Monsalve, J. N. (2014). Los equipos autodirigidos como ventaja competitiva: Estudio de un liderazgo efectivo. *Leadership: Magazine for Managers*. dic2010, Vol. 7 Issue 24.
- [16] García, J. M., Jiménez, G. A., & Ramírez, J. A. M. Implementación de un equipo de alto desempeño en una línea de producción para Mars México en el estado de Querétaro y su impacto en los indicadores de eficiencia y 5 S. *Competitividad y gestión del conocimiento en organizaciones con proyección internacional*, 237.
- [17] Schwab Klaus, (2017). *The Global Competitiveness Report 2017-2018* World Economic Forum. Geneva.
- [18] Hernández, J. (2011). *Desarrollo organizacional, enfoque latinoamericano*. México: Pearson.
- [19] Trejo, D. (2009). Identificación, análisis y aprovechamiento de la administración del conocimiento para la empresa y organización mexicana del siglo XXI. México: Editor Daniel Trejo Medina.
- [20] Child, J. (1981), "Culture, contingency, and capitalism in the cross national study of organizations", in Cummings, L. and Staw, B. (Eds), *Research in Organizational Behavior*, Vol. 3, pp. 303-56.
- [21] Barrett, G. and Bass, B. (1976), "Crosscultural issues in industrial and organizational psychology", in Dunnette, M. (Ed.), *Handbook of Industrial and Organizational Psychology*, Rand McNally, Chicago, IL.
- [22] Hofstede, (2018). Compare countries. Retrieved from <https://www.hofstede-insights.com/product/compare-countries/>

- [23] Chambers, D. and Hamer, S. (2012), "Culture and growth: some empirical evidence", *Bulletin of Economic Research*, Vol. 64 No. 4, pp. 549-564.
- [24] Clifford J. Drew, Michael L. Hardman, John L. Hosp. (2008). *Designing and Conducting Research in Education*. California, Estados Unidos. Sage
- [25] Hartas, D. (Ed.). (2015). *Educational research and inquiry: Qualitative and quantitative approaches*. Bloomsbury Publishing.
- [26] Yockey Ronald D. (2016). *SPSS DEMYSTIFIED A Step-by-Step Guide to Successful Data Analysis*. USA. Routledge.
- [27] Stowell, S. (2014). *Using R for statistics*. Apress.