



## THE SENSE OF BELONGING AND ACADEMIC ACTIVITIES AT THE POLYTECHNIC UNIVERSITY OF VERACRUZ

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### ABSTRACT

The sense of belonging is the need for people to unite with the society based on the emotional connection, empathy, and related tastes of the group members. In the educational context, these attitudes range from high motivation and academic involvement, physical and psychological well-being, to pride and perception of the center as a space for academic growth and social development. The sense of belonging helps to improve the motivation, school satisfaction and academic activities of the students. The objective of this article is to determine the relationship between academic activities and the sense of belonging in the students of Politecnica University in the center of Veracruz. The data collection instrument has been a questionnaire applied to 153 students of higher education of the Polytechnic University in the center of the state of Veracruz of the Degree in Administration and Management of PYMES. The correlation between Pearson and the Alpha of Cronbranch has been used to validate the instrument. The chi-square dependency test was used in order to analyze the relationship between the sense of belonging and academic activities. The result of observed or experimental square chi gives us a value of 36,261, while the value of theoretical square chi shows a value of 3.84. Therefore, the academic activities are related to the sense of belonging of the students of the Universidad Politecnica. The academic activations in the University are those that are made inside and outside the classroom by the teaching and administrative staff that contribute to the creation of knowledge in the students.

### INTRODUCTION

The sense of belonging is the intensity with which people feel connected with society (Cueto, Guerrero, Sugimaru, & Zevallos, 2010), which is the need for respect and affection on the part of others (McBeath, Drysdale, & Bohn, 2018). The sense of belonging generates the motivation to affiliate (St-Amand, Girard, & Smith, 2017), as a facet of social identity and, concerning the organizational field, as a facet of organizational identification (Harris & Cameron, 2005).

The sense of belonging of individuals is generated from the need to feel connections with other individuals (Fong Lam, Chen, Zhang & Liang, 2015), as the feeling of belonging to a community based on emotional union, empathy and related tastes among the members of a group (Abedin, Daneshgar and D'Ambra, 2010). The sense of belonging is more than integration; it is an association between the members of the community (Maestas, Vaquera, and Muñoz, 2007).

The sense of belonging is a relevant issue in the field of education. Education is a critical factor in creating a sense of belonging (Gillen-O'Neel & Fuligni, 2013). The combination of empathy and support among the members of the educational community generates a sense of belonging to the individuals (Bodaghi, Cheong & Zainab, 2016). Brea has described the sense of belonging within a higher education institution (2014 p.6) "it is a feeling of identification of an individual with a specific group or place. Affective bonds emerge from it that generate in the person positive attitudes towards the group and the place; it includes the desire to participate in its development and the construction of meanings".

In the educational context, these attitudes range from high motivation and academic involvement, physical and psychological well-being, to pride and perception of the center as a space for academic growth and social development (Brea, 2014).

Brea (2014) described four dimensions of the sense of belonging identified in university students. The psychological-social dimension of the sense of belonging refers to feeling identified and secure within a group or



system. The affective dimension orders the elements related to the bonding and attachment processes of the person to the characteristics, values, and meanings of a particular group and place. The physical dimension is shaped by aspects of the physical environment that influence people's identification of the places where their interactions occur. Finally, and taking into account the context of the present investigation, the academic dimension of the sense of belonging is considered related to the aspects that shape the students' sense of belonging.

The sense of belonging helps to improve motivation, school satisfaction, and students' academic activities (Fong Lam, Chen, Zhang & Liang, 2015). Likewise, students with a sense of belonging have less anxiety, greater autonomy, and school success (Cemalcilar, 2010).

The atmosphere in the classroom influences the sense of belonging of the student. The atmosphere in the classroom arises from the coexistence between classmates and teachers. That is why the teacher is a primary factor in the sense of belonging (Babakhani, 2014). Likewise, the academic quality where the teacher's performance is shown affects the sense of belonging (Fong Lam, Chen, Zhang & Liang, 2015).

The school involvement shows how committed, motivated, and involved a student is with his school so that this intervention makes him learn and perform (González, 2010). According to González (2010), there are three components of school involvement that reveal the multiplicity of factors and elements that influence whether a student is more or less involved or more or less disengaged from school. The behavioral dimension refers to the behaviors that can be observed to measure if the student fulfills his school obligations and obeys the rules.

The affective component is analyzed concerning the psychological part and the importance of the student's affective connections with his school, classrooms, and his classmates and teachers.

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The cognitive component of the psychological investment of the student in his learning; related aspects such as motivation and metacognitive strategies of the student are related to autonomous learning and responsibility for improvement.

On the other hand, students with no sense of school belonging tend to be depressed and drop out (Fong Lam, Chen, Zhang & Liang, 2015). Therefore, it is interesting to explore how belonging to the school influences the performance of academic activities. This article's objective is to determine the related academic activities and the sense of belonging in the students of Politecnica University in the center of Veracruz.

## MATERIALS AND METHODS

The data collection instrument has been a questionnaire (Drew, Hardman, & Hosp, 2007); applied to higher education students. The questionnaire consists of 15 questions. The Likert scale was used to measure the perception of the students (Nelson, 2016). where the following values were considered for the scale 1) Never, 2) Sometimes, 3) Frequently, 4) Almost always 5) Always.

To carry out the research, we considered a sample of 153 higher education students from a Polytechnic University in the center of the state of Veracruz of the Bachelor of Administration and Management of SMEs. The sample is made up of 35% men, 45% women, and 20% non-specific. The estimated age of the students is between 18 and 30 years old (they are students of the selective and mixed system).

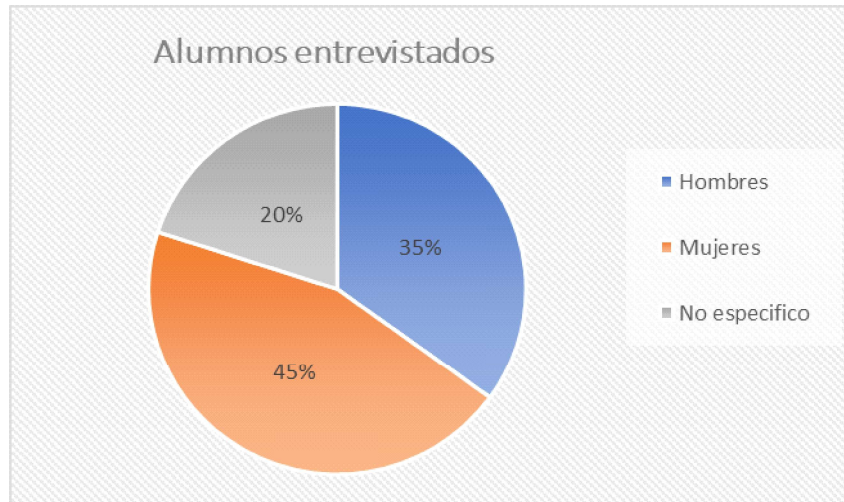


Figure 1. Graph of the students interviewed

## RESULTS AND DISCUSSION

The Pearson correlation (Table 1) and the Apha de Cronbranch (Table 2) were used to validate the instrument.

Table 1 Pearson correlation of the items

	ITEM1	ITEM2	ITEM3	ITEM4	ITEM5	ITEM6	ITEM7	ITEM8	ITEM9	ITEM10	ITEM11	ITEM12	ITEM13	ITEM14	ITEM15
ITEM1	1														
ITEM2	0.37221561	1													
ITEM3	0.1425153	0.14803693	1												
ITEM4	0.35315261	0.22290225	0.16872674	1											
ITEM5	0.12457271	0.16033458	0.05024624	0.12872795	1										
ITEM6	0.49378012	0.24284419	0.1732537	0.38502118	0.17329898	1									
ITEM7	0.48900958	0.23898608	0.18788572	0.28540486	0.12487529	0.59423765	1								
ITEM8	0.49567771	0.37594787	0.20216951	0.35608272	0.07952619	0.52420016	0.72884163	1							
ITEM9	0.45348447	0.32346985	0.17676777	0.26742823	0.1326615	0.39387971	0.45861111	0.60717851	1						
ITEM10	0.29859334	0.33946619	0.15581898	0.11885039	0.07991042	0.24618227	0.15922646	0.27485868	0.37393387	1					
ITEM11	0.25288492	0.23939569	0.17895693	0.24780054	0.03181018	0.29494795	0.3214577	0.42463489	0.43091312	0.58628125	1				
ITEM12	0.32868043	0.38644037	0.24039499	0.34951119	0.1736475	0.37765257	0.32399937	0.43819108	0.46946042	0.57652572	0.66347461	1			
ITEM13	0.5113477	0.34983239	0.25396046	0.13122179	0.09659883	0.33916022	0.34786697	0.37603064	0.46003242	0.54333002	0.49257807	0.54809765	1		
ITEM14	0.2345365	0.25185759	0.05937925	0.28501448	0.07366492	0.26225764	0.10922729	0.12681247	0.20447935	0.54215459	0.40466432	0.44680007	0.35249136	1	
ITEM15	0.32822661	0.30739233	0.10554374	0.29967207	0.23997417	0.34557465	0.21309253	0.20234069	0.28660921	0.56451695	0.47655343	0.49982266	0.40331783	0.61972017	1

It can be seen that there is no Pearson correlation between the items in the questionnaire.

This means that:

1. The items are not repeated.
2. The respondents did not interpret the items as equal or repeated.
3. The authors designed the items totally independent of each other.
4. The items do not have a natural linear or polynomial relationship.



**Table 2 Reliability of the instrument**

Cronbach's alpha	Number of items
0.875	15

The value of Cronbach's alpha of 0.875 represents a good adaptation of the reliability estimates of internal consistency in the instrument (Yockey, 2017).

The chi-square dependency test was used to analyze the relationship between the sense of belonging and academic activities. The chi-square dependence test identifies the association between two categorical variables (Dangeti, 2017).

Table 1 shows the results of the raw values taken directly from the survey. In table 3, we obtained the expected values, and in table 4, the square chi's statistical values are shown. In the specific case shown, questions 1 and 6 were compared. Question 1) How often do you feel proud of your university? Question 6) Academic activities make you feel part of your university.

**Table 3 Contingency 1 y 6**

		Variable X. Cultural activities		
		Yes	Not	Total
Variable Y. Sense of belonging	Yes	108	14	122
	Not	12	19	31
	Total	120	33	153

**Table 4 Expected values question 1 y 6**

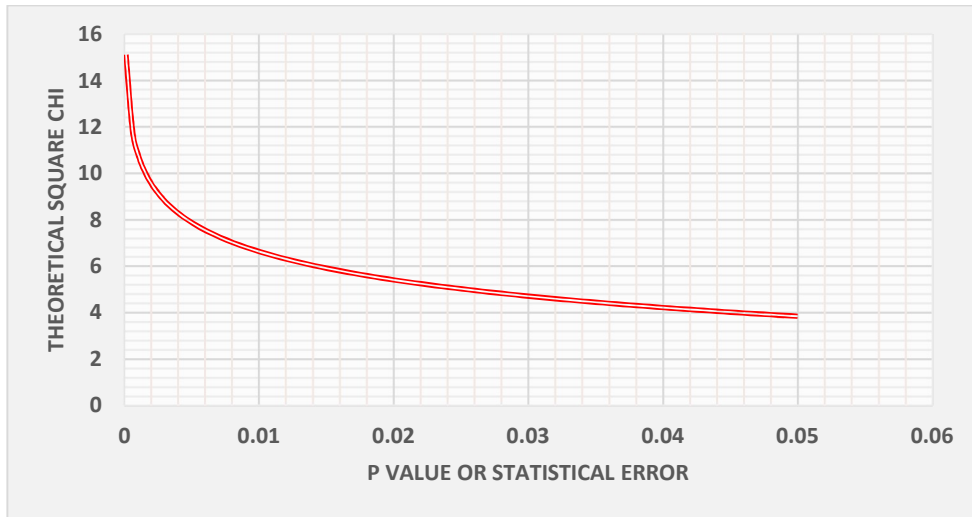
		Variable X. Cultural activities		
		Yes	Not	Total
Variable Y. Sense of belonging	Yes	95.6862745	26.3	122
	Not	24.3137255	6.69	31
	Total	120	33	153

**Table 5 Statistical values questions 1 y 6**

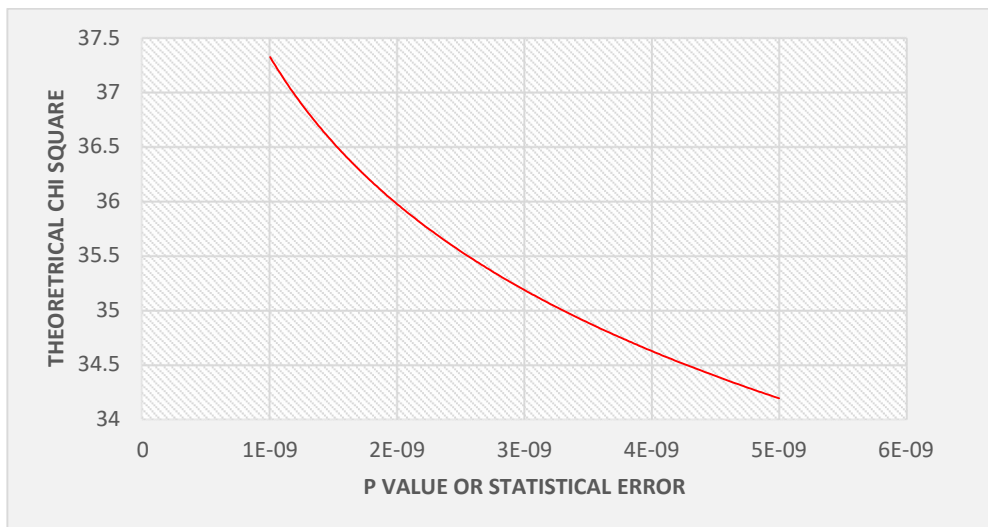
		Variable X. Cultural activities		
		Si	no	Total
Variable Y. Sense of belonging	Si	1.58463517	5.76	7.3469
	No	6.23630614	22.7	28.914
	Total	7.8209413	28.4	<b>36.261</b>
				<b>3.8415</b>

The result of observed or experimental square chi yields a value of 36,261 (table 4), while the theoretical square chi value shows a value of 3.84.

The calculated chi is very far from the theoretical chi and outside the standard Pearson curve for 1 degree of freedom figures 2 and 3.



**Figure 2. Graph of the theoretical inverse function: p value vs chi square of 1 degree of freedom.**



**Figure 3. Graph of the theoretical inverse function: p value vs chi square of 1 degree of freedom. The intersection (0.000699, 11.4919039) for observed or calculated chi is observed.**

Figure 2 and 3 show a p value almost zero for dependence and an independence with a p-value of 1. Figure 2 shows the intersection (0.05, 3.84) for theoretical chi. On the other hand, Figure 3 shows a confidence of almost 100% for the dependence of the variables: the academic activities and the sense of belonging of the students of a Polytechnic University.



## CONCLUSION

Based on the results, it can be deduced that variables 1 and 6 are statistically dependent. Therefore academic activities help higher-level students feel pride in their university, considering pride as a sense of belonging to the institution higher education

The academic activities are related to the sense of belonging of the students of Polytechnic University. We understand academic activities as those carried out in and out of the classroom by teaching and administrative staff. These activities contribute to the creation of Knowledge in students.

The sense of belonging to the school allows students to feel accepted, respected, and included in the school social environment (Aydiner & Kalender, 2015). Therefore, the school activities offered by the Polytechnic Institution allow it to be strengthened.

The interaction that is taking place in the classrooms, through the updated study programs, the level of teacher preparation, the relationships between teacher-student, student-student, infrastructure, materials, and tools, have allowed that school activities are successful in the Polytechnic Institution. Therefore, school activities having a relationship with the sense of belonging have allowed them to connect with others, be able, and feel part of the institution (Albert, 1991).

On the other hand, it is essential to emphasize that both the teacher and the administrative staff can be actors to increase the sense of belonging (Aydiner, & Kalender, 2015). The teacher interacts directly with the students; request study programs; manage materials and equipment. Administrative staff monitors the updating of study programs.

## REFERENCES

1. Abedin, B., Daneshgar, F., & D'Ambra, J. (2010). Underlying factors of sense of community in asynchronous computer supported collaborative learning environments. *MERLOT Journal of Online Learning and Teaching*, 6(3), 585–596.
2. Albert, L. (1991). *Cooperative discipline*. Circle Pines, MN: American Guidance Service
3. Aydiner, A., & Kalender, I. (2015). Student segments based on the factors related to sense of belonging across disadvantaged and resilient groups in PISA 2012. *Procedia-Social and Behavioral Sciences*, 174, 3299-3305.
- 4.
5. Babakhani, N. (2014). Perception of class and sense of school belonging and self-regulated learning: A causal model. *Procedia-Social and Behavioral Sciences*, 116, 1477-1482.
6. Bodaghi, N. B., Cheong, L. S., & Zainab, A. N. (2016). Librarians empathy: visually impaired students' experiences towards inclusion and sense of belonging in an academic library. *The Journal of Academic Librarianship*, 42(1), 87-96.
7. Brea, L. M. (2014). Factores determinantes del sentido de pertenencia de los estudiantes de Arquitectura de la Pontificia Universidad Católica Madre y Maestra, Campus Santo Tomás de Aquino (Tesis Doctoral).
8. Cemalcilar, Z. (2010). Schools as socialisation contexts: Understanding the impact of school climate factors on students' sense of school belonging. *Applied psychology*, 59(2), 243-272.
9. Cueto, S., Guerrero, G., Sugimaru, C., & Zevallos, A. M. (2010). Sense of belonging and transition to high schools in Peru. *International Journal of Educational Development*, 30(3), 277-287.
- 10.
11. Dangeti, P. (2017). *Statistics for machine learning*. Packt Publishing Ltd.
- 12.
13. Drew, C. J., Hardman, M. L., & Hosp, J. L. (2007). *Designing and conducting research in education*. Sage Publications.



14. Fong Lam, U., Chen, W. W., Zhang, J., & Liang, T. (2015). It feels good to learn where I belong: School belonging, academic emotions, and academic achievement in adolescents. *School Psychology International*, 36(4), 393-409.
15. Gillen-O'Neel, C., & Fuligni, A. (2013). A longitudinal study of school belonging and academic motivation across high school. *Child development*, 84(2), 678-692.
16. González, M. T. (2010). El alumno ante la escuela y su propio aprendizaje: algunas líneas de investigación en torno al concepto de implicación. *REICE: Revista Iberoamericana sobre Calidad, Eficacia y Cambio en Educación*, 8(4), 10-31.
17. Harris, G. E., & Cameron, J. E. (2005). Multiple Dimensions of Organizational Identification and Commitment as Predictors of Turnover Intentions and Psychological Well-Being. *Canadian Journal of Behavioural Science/Revue canadienne des sciences du comportement*, 37(3), 159.
18. Maestas, R., Vaquera, G.S., & Munoz, Z.L. (2007). Factors impacting sense of belonging at a Hispanic-serving Institution. *Journal of Hispanic Higher Education*, 6(3), 237-256.
19. McBeath, M., Drysdale, M. T., & Bohn, N. (2018). Work-integrated learning and the importance of peer support and sense of belonging. *Education+ Training*, 60(1), 39-53.
20. Nelson, J. (2016). The practice of survey research theory and applications: A review. *The Qualitative Report*, 21(4), 643-644.
21. St-Amand, J., Girard, S., & Smith, J. (2017). Sense of Belonging at School: Defining Attributes, Determinants, and Sustaining Strategies. *IAFOR Journal of Education*, 5(2), 105-119.
22. Yockey, R. D. (2017). *SPSS demystified*. Taylor & Francis.