



PME 42

July 3-8, 2018 --- Umeå, Sweden

Proceedings

Of the 42nd Conference of the International Group
for the Psychology of Mathematics Education

Editors: Ewa Bergqvist, Magnus Österholm,
Carina Granberg, and Lovisa Sumpter

Volume 5

Oral Communications, Poster Presentations

**Proceedings of the 42nd Conference
of the International Group
for the Psychology of Mathematics Education**

Umeå, Sweden
July 3-8, 2018

Editors

Ewa Bergqvist
Magnus Österholm
Carina Granberg
Lovisa Sumpter

Volume 5

Oral Communications, Poster Presentations



Cite as:

Bergqvist, E., Österholm, M., Granberg, C., & Sumpter, L. (Eds.). (2018). *Proceedings of the 42nd Conference of the International Group for the Psychology of Mathematics Education* (Vol. 5). Umeå, Sweden: PME.

Website: <http://www.pme42.se>

The proceedings are also available via <http://www.igpme.org>

Copyright © 2018 left to the authors

All rights reserved

ISSN: 0771-100X

ISBN (volume 5): 978-91-7601-906-1

Logo Design: Catarina Rudälv and Amanda Rudälv

Printed by CityPrint i Norr AB, Umeå

INTERDISCIPLINARY ACTIVITIES FOR AN INCLUSIVE MATHEMATICS EDUCATION

Teresa F. Blanco¹, Alejandro Gorgal Romarís¹, María Salgado Somoza¹, María Jesús Salinas Portugal¹, Pablo G. Sequeiros¹, Dolores Rodríguez Vivero¹, Cristina Núñez García¹, and José Manuel Diego-Mantecón²

¹Universidad de Santiago de Compostela, ²Universidad de Cantabria

The main goal of this research is to analyse how interdisciplinary activities increase the motivation of teenagers in risk of social exclusion for learning mathematics. The research is framed within the *Anaquiños Matemáticos (Mathematical Bits)* socio-educational program. This program is carried out outside classroom and proposes interdisciplinary activities for stimulating mathematics learning by means of a collaborative-based methodology. Such activities entail solving problems related to real life situations, applying and integrating knowledge from different school subjects, using hands-on materials as well as technology and games in collaboratively environment (Blanco, Gorgal, Salgado and Diego-Mantecón, 2017).

This is an experimental research in which 15 teenagers, aged 12 and 13, developed interdisciplinary activities outside the classroom during a two-years period, two hours a week. Although the teenagers attend regular lessons in the Spanish secondary education system, they are in risk of exclusion due to family-based factors (Vermunt, 2005). To assess the impact of these interdisciplinary activities, we used pre- post-interviews, as well as classroom observations during their lessons in the regular system and questionnaires to their mathematics teachers. The results revealed positive changes including better academic performance in mathematics, a more positive attitude towards this subject, and an increasing participation in the classroom.

Acknowledgments

This work was funded by the Spanish Ministry of Education under the research project EDU2017-84979-R.

References

- Blanco, T.F., Gorgal, A., Salgado, M. & Diego-Mantecón, J.M. (2017). Proyecto piloto basado en actividades STEAM para adolescentes en riesgo de exclusión social. In Martínez, V., Melero, N., Ibáñez, E. & Sánchez, M.C. (Eds.), *Derribando Muros. El compromiso de la Universidad con la justicia social y el desarrollo sostenible* (pp. 109-110). Sevilla, Spain.
- Vermunt, J. D. (2005). Relations between student learning patterns and personal and contextual factors and academic performance. *Higher education*, 49(3), p. 205.



UMEÅ UNIVERSITY