Presentation of the TACCLE3 Coding European Project

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Abstract

We present TACCLE3 – Coding European Project (Ref. 2015-1-BE02-KA201-012307) in the XVIII International Symposium on Computers and Education – SIIE 2016, held within the V Congreso Nacional de Informática – CEDI 2016 in the University of Salamanca, Spain, September 14th – 16th, 2016.

Taccle3 is a European Union Erasmus+ KA2 Programme project that supports primary school staff and others who are teaching computing to 4-14 year olds. It started at September 2015 and will end at August 2017.

All the information and the project outcomes and deliverables are available at the project website http://www.taccle3.eu and they are licensed under a Creative Commons Attribution-NonCommercial-ShareAlike 4.0 International License.

The project consortium is coordinated by GO! Het Gemeenschapsonderwijs (Belgium) and composed by following partners Pontydysgu Limited (United Kingdom), Scholengroep 1 Antwerpen (Belgium), Karlsruher Institut Fuer Technolie (Germany), Hariduse Infotehnoloogia Sihtasutus (Estonia), Tallinn University (Estonia), University of Salamanca (Spain), Aalto-Korkeakoulusaatio (Finland) y Itä-Suomen yliopisto (Finland).

Many European countries are introducing computing and coding as core curriculum topics. Some have already done so; many others are intending to. Inevitably the detail of the curricula will be different in each country but there is a substantial overlap - most all of the curricula available so far include programming, control technology and computational/logical thinking, so TACCLE3 has started with these.

Computational thinking was coined by Jeannette M. Wing (2006) as "Computational thinking involves solving problems, designing systems, and understanding human behaviour, by drawing on the concepts fundamental to computer science". García-Peñalvo (2016) states that "Computational thinking as the application of high level of abstraction and an algorithmic approach to solve any kind of problems".

TACCLE3 has three main aims:
1. To equip fellow classroom teachers, whatever their level of confidence, with the knowledge and the materials they need to teach coding effectively.
2. To develop a website of easy-to-follow and innovative ideas and resources to aid teachers in teaching coding. It will also include a review of the current academic

research and an overview of the resources currently available for teaching coding.

3. To provide national and international in-service training courses and other staff development events to help support and develop confidence and competences in teaching coding.

Teachers that are interested in participating in TACCLE3 – Coding may do it in several ways:

- Visiting the website to access to the resources
- Writing news related to coding in the schools
- Making learning activities following the next scheme
  Title
  1. Overview
      Brief description
      Age
      Level
      21st Century skills
      Tips to adapt the lesson (for example to older/younger students, students with special needs, etc.)
      Material
  2. Aim of the activity
  3. Needed tools and resources
  4. Practical activity description
- Making resource reviews (products, tools, books, courses, etc.) oriented to other teachers. There exists a recommended template https://dx.doi.org/10.6084/m9.figshare.3545033.v1
- Making courses

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Link to the presentation
http://www.slideshare.net/grialusal/presentation-of-the-taccle3-coding-european-project

Keywords
Computational thinking; Coding in the pre-university curricula; TACCLE3

References
Ananiadou, K., & Claro, M. (2009). 21st Century skills and competences for new millennium learners in OECD Countries. *OECD Education Working Papers, 41*.

Balanskat, A., & Engelhardt, K. (2015). *Computing our future. Computer programming and coding Priorities, school curricula and initiatives across Europe*. Retrieved from Brussels, Belgium: http://fcl.eun.org/documents/10180/14689/Computing+our+future_final.pdf/746e36 b1-e1a6-4bf1-8105-ea27c0d2bbe0

Binkley, M., Erstad, O., Herman, J., Raizen, S., Ripley, M., Miller-Ricci, M., & Rumble, M. (2012). Defining twenty-first century skills. In P. Griffin, B. McGaw, & E. Care (Eds.), *Assessment and teaching of 21st century skills* (pp. 17–66). Netherlands: Springer.

CODDII, & AENUI. (2014). Por la inclusión de asignaturas específicas de ciencia y tecnología informática en los estudios básicos de la enseñanza secundaria y bachillerato. *ReVisión, 7*(2), 5-7.

García-Peñalvo, F. J. (2016). La tercera misión. *Education in the Knowledge Society, 17*(1), 7-18. doi:http://dx.doi.org/10.14201/eks2016171718

García-Peñalvo, F. J. (2016). *Presentación del Proyecto TACCLE3 Coding*. Paper presented at the Workshop EI<18. Educación en Informática sub 18, Salamanca, España. http://repositorio.grial.eu/handle/grial/653

García-Peñalvo, F. J. (2016). Presentation of the TACCLE3 Coding European Project. Retrieved from http://repositorio.grial.eu/handle/grial/654

García-Peñalvo, F. J. (2016). *Proyecto TACCLE3 – Coding.* Paper presented at the XVIII Simposio Internacional de Informática Educativa, SIIE 2016, Salamanca, España.

García-Peñalvo, F. J. (2016). *Template for TACCLE 3 resources reviewing*. https://dx.doi.org/10.6084/m9.figshare.3545033.v1

García-Peñalvo, F. J. (2016). What Computational Thinking Is. *Journal of Information Technology Research, 9*(3).

Llorens-Largo, F. (2015). Dicen por ahí. . . . . que la nueva alfabetización pasa por la programación. *ReVisión, 8*(2), 11-14.

Manovich, L. (2013). *Software Takes Command*. New York, USA: Bloomsbury.

Michavila, F., Martínez, J. M., Martín-González, M., García-Peñalvo, F. J., & Cruz-Benito, J. (2016). *Barómetro de Empleabilidad y Empleo de los Universitarios en España, 2015 (Primer informe de resultados)*. Madrid: Observatorio de Empleabilidad y Empleo Universitarios.

TACCLE 3 Consortium. (2016). TACCLE 3: Coding Erasmus + Project website. Retrieved from http://www.taccle3.eu/

Wing, J. M. (2006). Computational Thinking. *Communications of the ACM, 49*(3), 33-35. doi:10.1145/1118178.1118215

Wing, J. M. (2008). Computational thinking and thinking about computing. *Philosophical Transactions of the Royal Society a-Mathematical Physical and Engineering Sciences, 366*(1881), 3717-3725. doi:10.1098/rsta.2008.0118

Wing, J. M. (2011). Computational Thinking. In G. Costagliola, A. Ko, A. Cypher, J. Nichols, C. Scaffidi, C. Kelleher, & B. Myers (Eds.), 2011 Ieee Symposium on Visual Languages and Human-Centric Computing (pp. 3-3).

Wing, J. M. (2011). Research Notebook: Computational Thinking--What and Why? *The Link. The magazine of the Carnegie Mellon University School of Computer Science*.