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## A comparison of intercultural student communities in Online Social Networks

Carlo Giglio\* & Roberto Palmieri

*\*Department of Mechanical, Energy and Management Engineering, University of Calabria, Building 42/C, Rende (CS), 87036, Italy*

### Abstract

This work is geared to analyze informal learning processes in student conferences. In particular, it compares social network interactions occurring in conference-related Facebook pages - i. e. Taiwan-America Student Conference (TASC), Japan-America Student Conference (JASC) and Korea-America Student Conference (KASC) pages - within a period starting 30 days before and finishing 30 days after the application deadlines. This empirical study has been realized by adopting open source visualization tools and techniques freely available on the software market in order to perform Social Network Analysis (SNA) in a transparent and reproducible way. Such an analysis provides interesting information on interaction dynamics, emerging hot topics and sub-group formation of attending students.

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Theme field: ICTs in learning as developmental processes

### 1. Introduction

Creating and enhancing personal and professional relationships among young people – e. g. students attending international conferences – leads to better results in terms of knowledge generation, updating and sharing (Palmieri & Giglio, 2015a; Palmieri & Giglio, 2015b; Palmieri & Giglio, 2015c). This is even more true when it comes to foster knowledge exchange among new generations coming from different countries. As a matter of fact, such conferences

\* Carlo Giglio. Tel.: +39-0984-494775; fax: +39-0984-494775.  
*E-mail address:* [carlo.giglio@unical.it](mailto:carlo.giglio@unical.it)

are geared to encourage attendees to pursue a shared vision of a peaceful future and to develop informal collaborations agreement in order to share ideas and concepts. Therefore, exchanging knowledge fosters most of innovations aimed at creating a better world (Yusuf, 2009; de Castro, Rodrigues, Esteves, & da Rosa Pires, 2000; Burton-Jones, 2001; Iammarino, 2005; Palmieri & Giglio, 2014). Such events provide students also with the opportunity to improve their skills or develop new ones. This way, attendees may obtain competitive advantages in the job market and, hence, higher performance in both social and professional activities (Takeuchi, 2006; Di Pietro & Anoruo, 2006).

However, analyzing key issues related to social media interactions and their effects on informal learning of conference attendees may be difficult. The main problem in this field is associated with the choice of the most adequate visualization tools and techniques due to the abundance of software solutions available on the market (Khan & Khan, 2011). Such an issue emerges also from the even bigger volume of data and information available in different contexts (North, 2012). Hence, it affects the data elaboration and interpretation process and, thus, influences the proper understanding of the case study at hand. As a matter of fact, visualization-related topics are worth attention of both academic and professional study groups (Khan & Khan, 2011). Each case study can lead to partially different conclusions based on the perspective of analysis adopted: different visualization approaches may highlight different factors, thus, affecting the overall understanding of analysts and scientists (Ware, 2004; Spence, 2001). Currently, the design of the visualization process, the visualization methods clustering process, and possible combinations of different methods represent the most relevant issues in this field. Therefore, it is important to discuss about theoretical issues and definitions of visualization methods and processes.

Visualization is defined as the representation of phenomena in a similar way to the original perception through proper computer-based tools and techniques (Khan & Khan, 2011; Card, Mackinlay, & Shneiderman, 1999), which fosters knowledge acquisition processes (Teyseyre & Campo, 2009; Khan & Khan, 2011). In fact, a richer and more intuitive representation can be obtained by means of graphical description tools (Tufte, 1997), which facilitate ranking and clustering of available data from different perspectives in order to perform the required analysis (Kowalski & Maybury, 2002; Butler, Almond, Bergeron, Brodlie, & Haber, 1993). The design of the visualization process is composed of a six-step model (Chittaro, 2006):

- Mapping refers to the processes of encoding and rendering in visual form;
- Selection is related to the separation between useful and useless data, which depends on the specific goals of the analysis at hand and may affect its success;
- Presentation refers to the way data and information are visually conveyed to all those potentially interested in it;
- Interactivity concerns the possibility for users to work on data and information through available tools and techniques;
- Accessibility and usability emphasize the “human factor” as they aim at satisfying special needs;
- Evaluation concerns the comparison between expected and actual results by using questionnaires, interviews, focus groups, controlled experiments, cognitive walkthroughs and expert reviews (Teyseyre and Campo, 2009).

The main data visualization methods are briefly detailed (Khan & Khan, 2011):

- Table is an intuitive and flexible format combining variables, factors and values;
- Pie chart visualizes data by means of slices associated with variables, factors and (percentage) values;
- Bar chart is a flexible tool for data visualization;
- Histogram clusters variables and factors into aggregated categories;
- Line chart visualizes data as a sequence of points associated with the corresponding values;
- Area chart reports available data in a bounded area;
- Scatter plot represents points in Cartesian coordinates;
- Bubble chart is a variant of scatter plot whereby bubble points are also endowed with the value of the diameter;
- Multiple Data Series is a mix of the aforementioned methods.

The objectives of this study are detailed in Section II. The choice of methods, tools and techniques adopted in this work is detailed and justified in Section III. Section IV introduces and discuss empirical results about the data

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