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FROM FIELD TO FEED: A SOCIAL NETWORK ANALYSIS OF A PHYGITAL EXPERIENTIAL LEARNING CASE IN HIGHER EDUCATION

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Abstract

The digital transformation of higher education requires innovative pedagogical models that bridge the gap between physical experiences and digital reflection. This study explores the role of the Teaching Learning Centre (TLC) at the University of Palermo as a strategic driver for "*onlife*" didactics. Central to this approach is the evolution of the educational visit through an innovative framework of experiential pedagogy. By connecting physical territory with digital interaction spaces, the project creates a "phygital" learning environment where students move from the field to the social media feed. Utilizing Social Network Analysis (SNA) via NodeXL, we analysed the communication dynamics of a joint didactic visit involving the Universities of Palermo and Coimbra. Results demonstrate that while institutional nodes act as primary hubs (Star Topology), gaining high levels of visibility within the institutional community from Meta Analytics, the digital re-elaboration of the experience not significantly effected peers' relation, although promoting students perceived self-efficacy and professional identity.

Keywords: *Educational visit, experiential learning, phygital, onlife perspective, teaching learning centre.*

1. The *onlife* challenge in higher education

The contemporary educational landscape is characterized by what Luciano Floridi defines as the "onlife" experience - a condition where the distinction between online and offline is no longer functional. Nowadays, younger generations are thoroughly accustomed to integrating digital devices into their everyday practices. Studying, eating, travelling, socialising, and playing are activities that can scarcely be imagined without the use of smartphones, web applications, social networks, and other digital tools. These technologies are profoundly transforming human experience and radically reshaping the ways in which individuals perceive and interact with the environments in which they live (Floridi, 2015; Morgan, 2015). In Higher Education, this shift demands a transition from traditional transmissive models to "phygital" environments that integrate physical presence with digital continuity. Recent research identifies online social media as a facilitator of students' collaborative learning and social interaction, fostering a more creative, dynamic, and research-oriented approach to education, particularly in the aftermath of the COVID-19 pandemic (Ansari & Khan, 2020). Within this theoretical framework, the present study investigates whether the use of social media platforms constitutes an effective strategy for establishing a causal relationship between the utilisation of digital tools and academic outcomes, about learning enhancement and students' self-efficacy.

Synthesizing seminal Social Learning Theory (Bandura, 1977) with contemporary educational research (Mohanty et al, 2024), (Dragseth, 2020), there is a consistent consensus that active student engagement and cohesive intergroup relations are pivotal for cultivating empathy and enhancing the quality of educational environments, including student-teacher interactions. Furthermore, current evidence substantiates a constructive correlation between positive peer interactions in physical settings and their effective transposition to digital learning contexts.

Moreover, learning by doing is the pillar of this educational set, linking students 'improvement to experiential knowledge, taking inspiration from the significant Kolb's theory: encompassing concrete experience (CE), reflective observation (RO), abstract conceptualization (AC), and active experimentation (AE) in all one cycle, learning activity widely increase its potential (Villarroel Henríquez et al, 2025). Following this framework, the physical visit to the partner University of Coimbra stands for CE, sharing digital storytelling via Facebook and Instagram represents the RO, the online discussion of the experience within the digital community symbolizes the AC and, finally, the production of new cultural content (the *feed)* embodies the AE.

In this context, connecting physical territory with digital interaction spaces like social networks, the project creates a "phygital" learning environment where students are encouraged to move from the field of the concrete experience to the social media feed of the digital dimension, fostering their sense of self-efficacy and professional growth shaping their vision *in the making* of the experience. Recent literature presents a variety of findings concerning the feasibility and effectiveness of different tools applied within learning environments, indeed, social media platforms can directly shape participants' interactions, as demonstrated also in communication studies on digital behaviours and online ecosystem experiences (Demeke, 2024) (Capriotti, Carreton, & Zeler, 2024a). Institutional communication, however, still largely relies on formalised and standardised modes of information delivery, often failing to generate high levels of engagement, except in cases identified in the literature as examples of good practice (Galioto, Pedone, Vantarakis, La Marca, & Bianco, 2025).

An illustrative example is provided by the previously mentioned study concerning the educational visit to Coimbra, organised in 2024 by an Italian university department with the aim of fostering students' soft skills, innovating pedagogical outcomes, and strengthening the sense of community belonging through online environment. The initiative produced particularly relevant outcomes for the present field of investigation. Specifically, the educational experience abroad acted as a significant catalyst for attention within the digital community, substantially increasing followers' engagement on the departmental Instagram account, as evidenced by analytics derived from the associated Meta Platforms Business tools. The educational experience in Portugal was documented by students through a storytelling methodology. Divided into three groups for their final assignment, students produced short-form videos in the format of "Reels," specifically designed for social media dissemination and aligned with the pedagogical objectives established for the evaluation process (Galioto, Pedone, Vantarakis, Tavares, & Bianco, 2025). So, in this perspective, Facebook/Instagram (Meta suite) become the mediator tool for data collection from students and contributed to evaluate students 'levels of engagement during this experimental set for innovative learning approach. That is the reason because we are intentioned to uncover if this platform, in that specific purpose, resulted to be suitable for develop interactions among learners and appropriate to improve educational outcomes in higher education.

2. The Coimbra case study. Institutional communication and experimental pedagogy

Background. While institutional communication often remains tethered to formal and conventional structures that struggle to achieve high engagement, specific "good practices" offer a different path. A notable example is the 2024 educational visit to Coimbra organized by an Italian department from the University of Palermo. This initiative aimed to foster soft skills among students, innovate pedagogical approach, and strengthen the community sense of belonging. The educational visit acted as a powerful attention catalyst within the digital community. Data from the Meta Business Suite of the departmental institutional account revealed a "peak" in interaction levels, particularly on Instagram, since it resulted to be the favourite platform by its specific target-audience - people aged 18–25 years. During the pedagogical trial, students were divided into three groups to produce "Reels" for their final assignments, as it has selected by teachers a digital storytelling methodology for self-reporting. This format served both as a pedagogical tool for assessment and as a medium for social sharing, with the aim of fostering interaction and engagement among young students. It follows that this "phygital" ecosystem model was built on three pillars: knowledge sharing, interactivity and engagement. In the aftermath of the pandemic, both educators and students recognised the potential of digital tools to overcome physical boundaries, enabling continuous collaboration regardless of geographical distance without diminishing the core significance of communication.

Furthermore, by transforming students from passive recipients into active producers of culture, these practices encourage the critical reinterpretation and re-elaboration of content. Finally, and perhaps most importantly, student engagement emerges as the primary driver of success: when students are acknowledged as active individuals within these networks, their perceived self-efficacy and sense of institutional belonging increase significantly (Galioto, Pedone, Vantarakis, Tavares, & Bianco, 2025).

Evidence. As revealed by the Meta statistics dashboard, in the period during which the departmental delegation organised and promoted the educational visits abroad September 2024, the institutional account produced a markedly positive impact on overall account performance, recording an increase of 326.9% compared with the previous month of August (Galioto, Pedone, Vantarakis, Tavares, & Bianco, 2025). The initiative generated substantial online engagement and stimulated widespread digital interaction among users, invited to using specific hashtags while tagging the institutional account. Moreover, audience engagement on Instagram and Facebook was particularly concentrated during the days in which the educational visit took place, as evidenced by the interaction trends presented in graphical visualization available from Meta. Particularly noteworthy was the observation that reinforcing

interpersonal relationships through in-person initiatives while simultaneously narrating these experiences on social networks — by emphasising memorable moments, tagging locations, mentioning participants, and encouraging collaborative posting — not only increased familiarity with departmental activities among the wider audience, but also provided the institutional management with valuable insights for designing future initiatives capable of engaging a broader public (Bader & Condrache, 2025).

Critical reflections. Mobile devices and social media offer unprecedented opportunities for academic collaboration and access to content. However, while these tools are often perceived by students as cost-effective and convenient, their efficacy in fostering deep peer-to-peer relations remains a subject of debate (Capriotti, Carretón-Ballester, & Losada-Díaz, 2024b). A critical question therefore emerges: are social networks genuinely effective in promoting collaborative learning, or do they primarily function as marketing tools for institutional communication? To address this issue in a more systematic and consequential manner, we conducted a social network analysis (SNA) of the educational visit experience to examine whether the observed network structure aligns with researchers' expectations.

The model aims to enhance students' academic performance by positioning digital cooperation not only as a communication tool but also as a knowledge domain that fosters creativity, research-oriented attitudes, and peer interaction (Galindo-Domínguez et al., 2024). The widespread diffusion of social media and internet-based communication technologies is reshaping young people's behavioural patterns, requiring higher education institutions to effectively integrate digital tools into learning environments. Nevertheless, further research is needed to assess whether social networks effectively support peer relationships and collaborative learning, or whether their primary value lies in institutional communication and marketing rather than in promoting student learning outcomes.

3. The social network analysis with NodeXL for the educational visit investigation

Methodology. SNA allows us to visualize the structure of communication and identify the roles of different actors, mapping the relational dynamics while measuring the Instagram's metrics of interactions (likes, mentions, and tags) (Milia & Trobia, 2011) . Data was extracted using NodeXL (Smith, 2013) from Instagram departmental account (*department sppeff*) searching for the specific hashtag "*#educationalvisitcoimbra*" to evaluating the number of connections per node (Degree), the extent to which a node acts as a bridge between other nodes (Betweenness centrality), how "close" a node is to all other nodes in the network (Closeness centrality) and the ratio of actual connections to potential connections (Graph density). Following a structural view, "vertices" are the fundamental discrete units or points of the graph, representing the entities within a system that are connected to one another. Using the term of "node" in SNA it is represented or an individual actor, an account (e.g., an Instagram profile) within the social ecosystem. Since "node" typically implies a functional role within a dynamic system, emphasizing the entity's capacity to process, store, or transmit information in the topology visualization of the communication network. Edges symbolize the digital interactions - specifically mentions and tags - that occurred during the educational visit. While the vertices represent the participants and institutional account, the edges map the relational fabric of the 'phygital' experience.

Results and analysis. The data extraction process produced a network composed of 20 vertices and 24 edges. The density of the connections reflects the degree of cohesion within the student group, while the concentration of edges around the institutional account node (*department sppeff*) identifies it as the principal relational hub of the network. Social Network Analysis (SNA) revealed the prevalence of a dominant "Star Topology" (Figure 1), highlighting a digital ecosystem in which the departmental account occupies a central communicative role. Within this configuration, the institutional profile functions as the primary hub, coordinating and directing most information flows among institutional accounts, teachers and students. From a quantitative perspective, the departmental account node exhibits a Betweenness Centrality of 165.5, the highest in the dataset (Table 1). In network science, this identifies the institutional profile as the critical "gatekeeper" or broker of information. It acts as a mandatory bridge between international partners (e.g., University of Coimbra) and the student body. More specifically, the *department sppeff* account emerged as the undisputed leader of the network, acting as the principal intermediary for nearly all interactions within the system. At the same time, the *Teacher 1* profile, in the role of contact person organizing the international experience, assumed the role of a bridging node. The visualisation of the network through the star topology model points to a highly centralised communication structure and supports a second relevant outcome of the SNA: namely, that the institutional communication strategy was effective in aggregating students around a shared narrative while simultaneously maintaining strong institutional leadership over the communication process. Although this represents a valuable outcome from the perspective of institutional marketing and advocacy, the "Hierarchical-Bottleneck" visualisation (Figure 2) also highlights the presence of potential communicative "constraints".

Figure 1. The "Star" Topology.

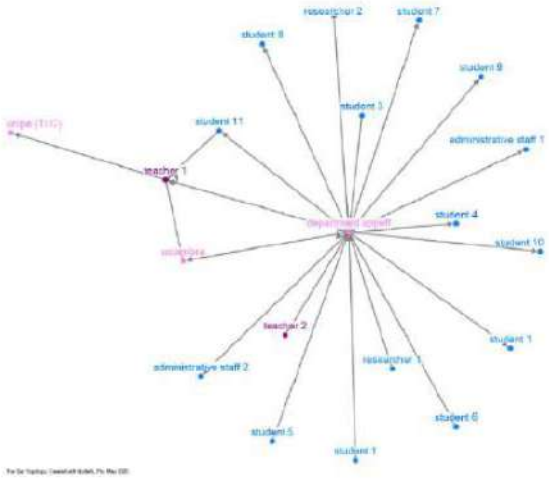


Table 1. Betweenness and Closeness Centrality metrics.

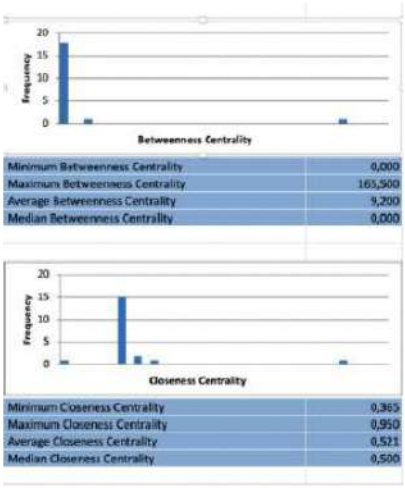
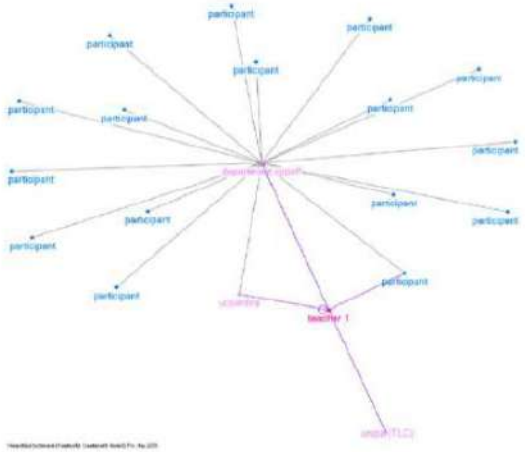


Figure 2. "Hierarchical-Bottleneck".



4. Conclusion and future implications

The results derived from this experiential learning approach indicate that the transition from the "field" to the "feed" encourages students to internalise and reinterpret their educational achievements. When students share reflections on the educational visit through social media and subsequently receive institutional validation - for instance through likes, reposts, or interactions from the departmental account - their perceived sense of self-efficacy appears to increase. The digital environment associated with institutional communication functions as a symbolic "screen" reflecting the construction of a professionalising identity. The findings suggest the emergence of a form of "bottom-up" validation process in which students move from the reality - the lived physical experience - to the digital dimension, understood as its narration and reinterpretation through social media practices (Mayer & Schwemmle, 2023). By tagging and interacting with the institutional hubs - university and departmental accounts -, students do not merely engage in social interaction; rather, they participate in a process of pedagogical re-elaboration through which personal achievements are aligned with the university's academic identity and values, although low engagement is visible among peers.

The structural network analysis conducted via SNA provides a robust empirical validation of the proposed conceptual framework, illustrating the tangible operationalization of pedagogical strategy into digital interaction. At the epicentre of this ecosystem lies the departmental account whose function as a strategic hub is unequivocally demonstrated by the data: the "*department sppeff*" node operates as the primary knowledge broker, serving as an essential bridge between the academic institution as the Unipa TLC and the student body. This centrality transcends mere communicative hierarchy, directly supporting the research hypothesis regarding interactivity with instructors and the institution and confirming that the departmental hub acts as the "gatekeeper" of information flow. The pivotal transition from the "field" (the physical experience) to the "feed" (the digital re-elaboration) is empirically reflected in the high density of

inward edges directed toward the central hub, validating the students' propensity for online knowledge sharing. In this context, the "star topology" identified by NodeXL is not merely a graphical model, but a representation of a symbolic validation process: by tagging the institutional hub, students seek a form of academic recognition that transforms individual storytelling into collective cultural assets. This process fuels the sense of institutional belonging and perceived self-efficacy that the theoretical model identifies as the primary drivers of student engagement (Allen et al, 2024). However, the significant dependency on the central node ("Hierarchical-bottleneck" structure) suggests a need to evolve toward more decentralized architectures. To fully maximize peer-to-peer interactivity, future pedagogical interventions must aim to transform this radial structure into a horizontal "mesh" community. In such a model, the student will become an autonomous, active node within a distributed "phygital" collaborative network. Future developments should focus on training students to transform into "nodes of influence" themselves, fostering horizontal collaborative learning that complements the current institutional leadership. To conclude, this study recognizes Teaching Learning Centres (TLCs) globally as feasible engine for implementing this innovative educational model, by leveraging educational visits as key venues for experimental transformation, what was once considered a mere supplemental field activity is reimagined as a complex learning ecosystem. In this framework, phygital experiences serve as representative markers of contemporary human advancement.

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