

THE EFFECTS OF VIRTUAL MUSEUMS ON STUDENTS' POSITIVE INTERDEPENDENCE IN LEARNING ITALIAN AS A FOREIGN LANGUAGE

Alcune ricerche suggeriscono che l'interdipendenza positiva sia alla base dell'apprendimento linguistico e delle interazioni (Johnson & Johnson, 2005), accomunando istituzioni educative e musei nella creazione di dialoghi tra visitatori e arte attraverso le lingue straniere. L'utilizzo di risorse digitali a fini educativi è notevolmente aumentato, ma la ricerca sugli effetti dei musei virtuali sull'interdipendenza positiva tra studenti è ancora esigua. In questo articolo verranno riportati i risultati di esperimenti condotti su 15 studenti di lingua italiana a confronto con la collezione digitale di Palazzo Ducale di Venezia. Valutandone l'impatto sulle interazioni, verrà mostrato come i musei virtuali possano promuovere l'interdipendenza positiva attraverso cooperazione, turni di parola, negoziazioni e assegnazione di ruoli durante attività linguistiche basate sui tasks.

● **Ilaria Compagnoni**
| Ca' Foscari
University of Venice



Ilaria Compagnoni is a PhD candidate in Language Sciences and Languages and Interculturality at Ca' Foscari University of Venice (Italy) and the University of Primorska (Slovenia). Her research focuses on investigating students' interdependence by applying Extended Reality (XR) to language education.

Introduction

Social theories define positive interdependence as a situation of mutual reliance between individuals oriented towards the achievement of mutual goals (Johnson & Johnson, 2005). When applied to museum contexts, positive interdependence can be fostered through collaborative activities encouraging language learning in explorative collection tours where visitors depend on one another through task-based activities using museum displays. As a result, museums and education are two inextricably connected domains; while educational institutions have utilised museums as learning environments to boost student engagement with tangible objects and integrate language activities with museum collections, museums also rely on school visits to implement their educational policies (Ho, Nelson, & Müller-Wittig, 2010; Fazzi & Lasagabaster, 2020). With the Covid-19 pandemic and the consequent depriva-

tion of in-person communication and restricted access to physical spaces, museums and educational institutions have increasingly adopted virtual resources to engage students in online interactions and content-based activities. From these considerations, this paper supports the view that virtual museum activities can be used as potential resources to counteract students' absenteeism, prevent disengagement and stimulate curiosity through immersive group activities based on real-life cultural contents provided by digitally-accessible museum galleries. Specifically, it hypothesises that by using virtual museum content in online language classes, positive interdependence may surface as (a) increased pro-social behaviours of negotiations and goal-orientation, (b) heightened perceptions of peer collaboration as necessary to attain activity goals, (c) perceived ownership of the final product of the activity and (d) recognition of individual contributions as valuable and effective to reach tasks goals.

Literature review on interdependence in language education and museum contexts

Positive interdependence is a fundamental social behaviour as human beings develop mutually beneficial relationships to attain common goals (Deutsch, 1949). When applied to language education, these goals are linked to language activities in which individuals thrive on peer interactions and tool usage to achieve task goals (Laal, 2013). Common interests in efficiently achieving mutual aims encourage participation and meaning negotiation in a foreign language. In other words, positive interdependent behaviours contribute to the effectiveness of language learning as students maximise each other's learning potentials by cooperatively promoting interactions for goal achievement. In this way, interdependent learners are more likely to overcome task challenges, perceive individual contributions as worthwhile and positively value group work as a collective effort towards goal attainment (Van Lange & Rusbult, 2013). The establishment of interdependent relationships amongst students is therefore a desirable outcome of language learning as it promotes group efficacy, cohesion and affiliation. For these reasons, teachers should aim at encouraging long-lasting interdependent relationships in language classrooms by selecting task goals and relevant tools that match students' interests. With specific reference to interdependence-supporting tools, virtual museums might constitute a valid instrument to integrate in the language class.

Research suggests that positive interdependent relationships surfacing during museum visits may be similar to those of individuals involved in task-based language activities. In fact, to increase audience engagement, museums have utilised technology to enable visitors' enjoyment by interacting with one another and with the collections on display (Stuedhal & Smørdal, 2011). With Covid-19 restrictions on visitor accessibility, museums have invested in digital resources, offering the public the possibility to visit galleries online with interactive experiences (Pascoal, Tallone, & Furtado, 2020). An important resource for museums and cultural institutions has been *Google Arts & Culture*, an online platform storing high-quality pictures and videos of art

and cultural products. The platform enables users to zoom-in on artistic details and project artwork in physical spaces with phone-based functions. Given the free availability of *Google Arts & Culture*, language teachers have integrated virtual museums in online language classes by engaging students in virtual explorations of digital collections (Cottrell, 2020).

Museum activities can be incorporated into virtual task-based language classes and used by learners as interdependence-fostering tools. Because of the considerable changes brought by technology to the dynamics of group learning, it would be interesting to see if pro-social behaviours of clarification-seeking, negotiation and goal-orientation surface when learners are engaged in virtual group work with museum-based activities. Inquiries of this kind are particularly relevant given the digital transformation of learning experiences at museums and educational institutions, which are increasingly blending in-person activities with virtual ones.

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Methodology

Considerations on the utilisation of virtual museums as interdependence boosters in language learning led the researcher to create virtual museum activities for online language classes of Italian as a Foreign Language (FL). The aim was to assess the effects of enhanced artwork interactivity on students' interdependence, which was hypothesised to surface as linguistic strategies of cooperation and negotiation. Planned according to a task-based language learning methodology (Willis, 1996), experiments were structured in three phases: a pre-task exercise, group work and a post-task. By using *ZOOM*, *Kahoot!* and *ThingLink* to conduct the activities and *Google Arts & Culture* as the source of virtual museum materials, this research involved 15 participants consisting of undergraduate

Figure 1

Screenshot of the brainstorming activity on *ThingLink*.



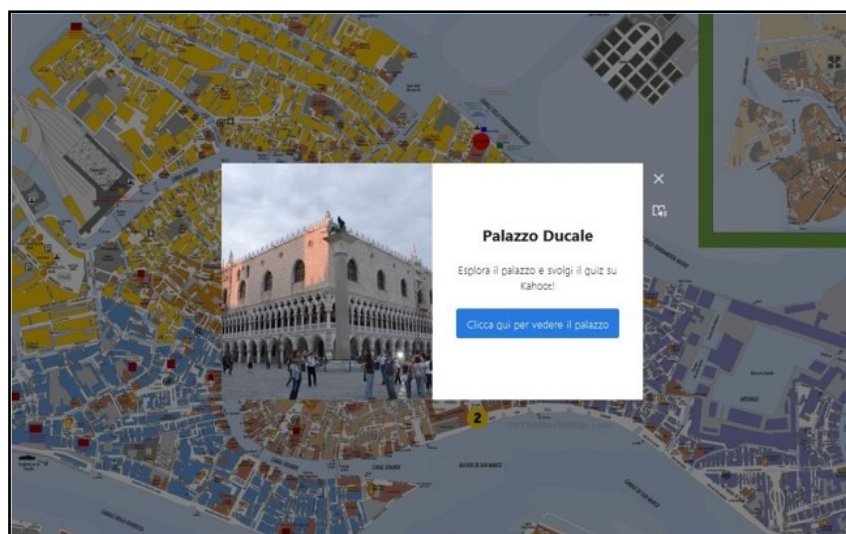
Figure 2

Screenshot of a question in the *Kahoot!* quiz shared by the researcher with the students.



Figure 3

ThingLink page used for the *Kahoot!* quiz. The tag contains the link to the page "Explore Palazzo Ducale" on *Google Arts & Culture*.



¹ Consent has been received to reproduce and utilize the screenshots of Figures 1, 2, 3, 4 and 5.

and postgraduate students of Italian as a FL with proficiency levels ranging from beginner to advanced. They belonged to four class groups and were given 60 minutes to complete the activities. The goal was to explore the virtual galleries of Palazzo Ducale in Venice and select a painting that, according to each group, depicted a subject that best described a good governor. Language content was adapted to linguistic competences, while the activity structure remained the same for all proficiency levels.

The first task consisted in a brainstorming exercise on *ThingLink*, an educational technology platform enabling the creation of activities with interactive links and tags to activate students' knowledge of Venice. The second task consisted of a *Kahoot!* quiz on the virtual exploration of Palazzo Ducale on *Google Arts & Culture* (Figure 1, Figure 2)¹.

In the task phase, students compared and answered questions on two paintings, one of which belonged to the virtual gallery of Palazzo Ducale (Figure 3). Subsequently, the platform *ThingLink* was used as an interface to deliver virtual museum contents with which students completed language tasks in groups, as prompted by customised and interactive tags (Figure 4). Subsequently, they selected a painting that best corresponded to the representation of a "good governor" (Figure 5).

Data was collected via a mixed-methods design (Dörnyei, 2007) including online classroom observations, a post-activity questionnaire, focus groups and interviews with language tutors, all of which were transcribed by the researcher. The subsequent analysis aimed at identifying interdependent behaviours triggered by the utilisation of virtual museums in task-based activities. For this reason, participants were interviewed in focus groups which were later transcribed and analysed. Shortly after task execution, all participants completed a questionnaire of qualitative and quantitative nature and focus groups were conducted together with interviews to the language tutors who were present during the activities.

Research findings

The first finding of this research consisted in demonstrating how students sought clarifications as a preliminary move for successfully establishing interdependence as a prerequisite for initiating group activities. In fact, clarifications were pursued when individuals attempted to understand task affordances to reach target goals quickly and efficiently and were also used by students to monitor participants' personality cues. This was useful to assign task roles in subsequent activity stages. Students assigned each other roles that best corresponded to personality traits to attain specific task goals. For instance, in the painting selection phase, when given information on the task in a linguistically clear and confident manner by a group member, a student later agreed with them on a painting choice, perhaps implicitly recognising that their partner's leadership and strong language competences were likely to lead to successful task accomplishment. In other words, interdependence surfaced as individuals helped each other to reach task targets by establishing a common ground from which actions could depart. Only when students received clarifications on the instructions to follow at each activity stage did negotiations and goal-oriented language use start to unfold in interactions. Moreover, when participants sought clarifications amongst one another, interdependence was more likely to appear since students collaborated towards goal attainment and used Italian instead of English to communicate. Conversely, when students did not clarify task instructions with one another, they remained silent, leaving their partners to complete the tasks alone.

The second finding showed that negotiations arising from the use of virtual museums generally favoured interdependent interactions. For instance, students commented on peer preferences, expressed their opinions on virtual collections, negotiated a way to cooperatively work on activity contents, ensured active participation and quick information retrieval. For instance, students added question tags to their oral production in Italian to ensure their partners remained focused on the tasks. Moreover, they were involved in negotiations when asking each other opinions on the digital collections being explored. Negotiations also implied

Figure 4

Screenshot of the *ThingLink* page containing the link to the virtual museum page of Palazzo Ducale on *Google Arts & Culture*.

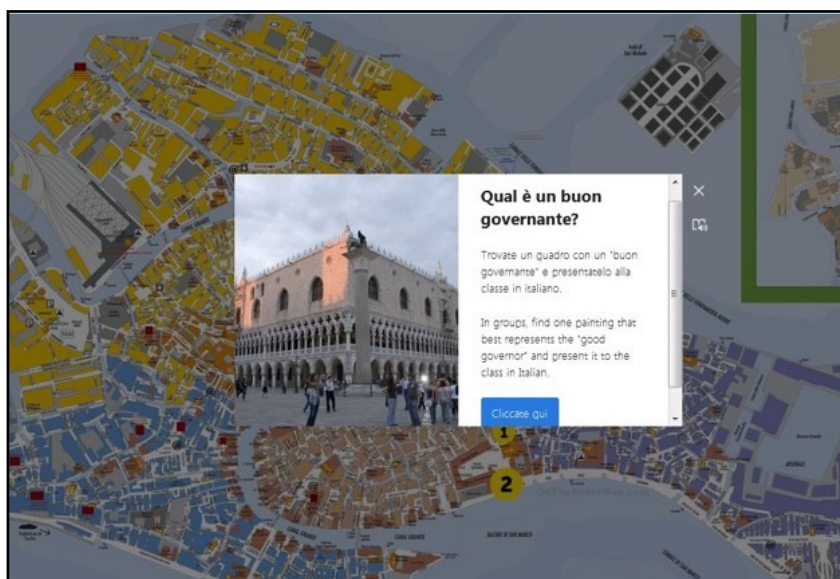
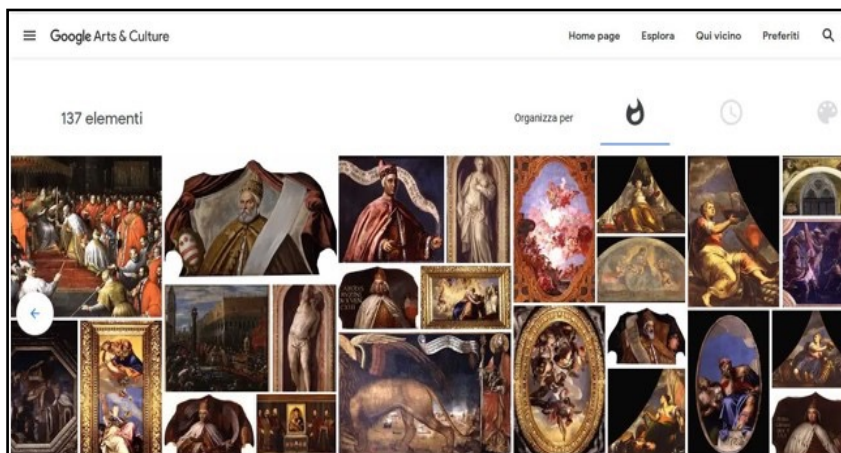


Figure 5

Screenshot of the virtual collection of Palazzo Ducale on *Google Arts & Culture*.



Using virtual museums in language education may be used as a resource to foster positive interdependence amongst students using the target language to attain mutual goals.

that students respected turn-taking. This led to the establishment of interdependence-fostering interactional strategies which thus contributed to making activity goals the results of mutual, not individual, efforts. Additional observations revealed that some participants used negotiations to value personal contributions while selecting the most relevant inputs for goal attainment. Consequently, the role of activity leader switched amongst the participants depending on how the group felt about which individual's personal contributions seemed more appropriate. Observations also revealed that leadership roles spontaneously surfaced in group dynamics and the researcher noticed that those leaders who seemed at ease with technological tools were more likely to allow for followers' decisional power to emerge in directing group actions. In this way, leaders balanced role division and favoured the emergence of the opinions of all group members before a unanimous decision was reached. In fact, by using language and subject expertise to support other group members, leaders promoted interdependent relationships, which appeared to be strongly dependent on language and virtual museum use.

A third important result was observed in the relationship between interdependence, and verbal/non-verbal language use. Despite the interactional limitations of online environments, students made use of non-verbal skills such as hand gestures and facial expressions which contributed to clarify language and art content to their peers. Non-verbal language seemed to be essential to convey meanings, provide clarifications and signal important actions just as if the participants were communicating face-to-face. With regards to language, data suggests that the utilisation of virtual museums enhanced students' opportunities to interact in Italian even when vocabulary and grammar knowledge were limited, leading to co-constructions of linguistic meanings and mutual corrections.

Conclusion and future directions

Overall, this paper has shown that virtual museums in language education may be used as a resource to foster positive interdependence amongst students utilising the target language to attain mutual goals. In fact, results confirmed that the use of virtual museums in online language classes can significantly contribute to the establishment of positive students' interdependence by fostering cooperation, turn-taking, negotiations and role-assignment despite the lack of in-person interactions. Therefore, it can be said that this paper has provided potential indications on using digital environments to support students' interdependence when learners are deprived of opportunities to interact face-to-face. Since it made use of language learning methodologies alternative to in-person attendance, this research also highlighted potential directions in creating flexible learning environments blending virtual with physical exposure.

Unaccounted factors in this study include the influence of motivation and personal interests on students' performance, lack of technological know-how and homogeneity in language knowledge. Moreover, time constraints prevented a detailed analysis of specific linguistic aspects that surfaced during interdependent interactions, such as grammatical moods. This suggests that to create interdependence-fostering activities and further analyse the effects of virtual museums on language production, future experimental studies could potentially focus on semester-long courses integrating virtual museums in language curricula. Furthermore, future investigations could explore how to design adaptable language learning practices catering for the rapid evolution of virtual museum resources and their implications for students' interdependence.

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