

DIDATTICA E RICERCA

La didattica nella ricerca e la ricerca nella didattica

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ILARIA COMPAGNONI

POSITIVE INTERDEPENDENCE IN VIRTUAL REALITY

**A NOVEL APPROACH TO LEARNING ITALIAN
AS A FOREIGN LANGUAGE**





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«No man is an island, entire of itself; every man
is a piece of the continent, a part of the main»

John Donne

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INTRODUCTION

Language plays a pivotal role in shaping communication and human relationships as it is a deliberate communicative act achieved through social interaction. Through language, individuals express their unique identities, connect their thoughts to the world, exercise their agency, and define themselves within a social context. Since it is acquired through social processes, language also relies on mutual communicative efforts to decode, create, and mediate new meanings, fostering synergy towards shared goals. This relationship, known as positive interdependence, is the foundation of cooperative work (Johnson & Johnson, 2005).

It is essential to contextualise the impact of positive interdependent behaviours in language education since linguistic knowledge is pragmatically acquired when individuals learn from and with others, cooperatively acting to overcome communicative and task-based challenges. On a linguistic level, these behaviours are likely to manifest through mediation strategies, which foster language learning effectiveness through cooperative meaning-making activities (Moore, 2014; Rusbult & van Lange, 2003). In this way, learners

may develop contextually driven, mutually beneficial relationships facilitating the establishment of trust, cooperation, and conflict resolution. Furthermore, when incorporated into language tasks, these skills enhance leadership awareness, foster goal-oriented discussions and clarification requests, and promote feedback and critical reasoning (Loh & Ang, 2020).

Language production achieves its goal-oriented effectiveness when coupled with manifestations of human agency as learners manipulate tools and communicate through them. In particular, in an education sector swiftly incorporating immersive and interactive technologies as essential components of instructional methods, social interactions are becoming increasingly digital, unfolding through engagements between humans and machines. To facilitate the effective accomplishment of specific communication goals, the interactive complexity of digital tools must meet task intricacy and add authenticity to language activities (Thorne, 2016). Hence, digital tools play a crucial role in fostering word-image associations and mental representations, thereby significantly enhancing learning (Elia, 2017; Compagnoni, 2022). Consequently, they affect students' interdependence and the language deployed to facilitate interaction flow and content retention (Ally, 2019). The extent of such impact has been investigated across the most commonly taught languages, including Italian. In particular, researchers have enquired about the impact of virtual tools in nurturing students' interdependence in blended modalities of online and in-person learning. Considerations have also been made on the tools facilitating the deployment of language strategies as manifestations of positive interdependence and the affordances that could best support them.

Virtual learning environments can be categorized based on the degree of immersion their design features provide. These environments enable students to collaborate on shared projects, leveraging technological tools that enhance their agency (Cunningham, 2019). Specifically, Virtual Reality (VR) can fully immerse users in realistic settings with avatar-like interactions (iVR) or allow them to use personal computers as their primary interface for collaboration (non-iVR). Practices for improving learner-to-learner foreign language interactions in task-based cooperative projects with these technologies revealed positive results in enhancing goal-oriented strategies (Rattanasak, 2023). However, research on VR integrations in language curricula and the impact of virtual technologies on teamwork and conflict management is missing. Therefore, investigations into the use of VR in language education should consider how to effectively engage students within language learning spaces, facilitate collaborative group interactions, and promote the acquisition and application of task-oriented linguistic strategies in hybrid learning environments. While many studies have explored the use of VR to enhance students' cultural understanding, personalise learning experiences, improve teamwork skills, and develop domain-specific language abilities, there is a lack of evidence on whether this technology can foster positive interdependence. This is particularly relevant to developing mediation strategies, which serve as communicative expressions of positive interdependence and are essential for facilitating language acquisition through goal-oriented collaboration. Therefore, further research is necessary to highlight the potential benefits of these technologies. Realising this potential, however, relies on structuring tasks following established pedagogical methodologies, thereby shifting

attention to language pedagogy and the role of teachers in tech-based education.

To tackle these challenges and contribute to filling a notable gap in the literature, this study hypothesises that VR is an effective tool for fostering students' interdependence in remote settings by providing highly interactive experiences and realistic environments for language practice, where students' interdependence can be promoted. Positive interdependence strategies, particularly mediation skills, are crucial in facilitating language development through goal-oriented collaboration. In an attempt to shed light on these topics, this project addresses the following research question:

- What are the effects of VR on the positive interdependence of students of Italian as a foreign language in blended learning modalities?

The questions will be investigated through a case study conducted on fifteen students of Italian as a Foreign Language (FL) from Ca' Foscari University of Venice and the University of Siena, who used VR for conducting language activities on digital storytelling. The study has a dedicated section with a methodological description of the structure of the interventions and the process deployed to retrieve quantitative and qualitative information. Each section also comprises an analysis and discussion of the collected data and a summary of the main findings. Overall conclusions summarise the findings and draw conclusive remarks.

It is hoped that the contents of this book can shed light on pedagogical practices that help students develop the mediation strategies needed to interact in an increasingly digital society. These results will underscore the importance of experiential learning for successfully integrating

VR into language education. The more interdependent-aware the language students are, the more effectively they can achieve their life purposes with the help of interactive technologies.

CHAPTER I

INTERDEPENDENCE: INSIGHTS FROM BEHAVIOURAL PSYCHOLOGY

Positive interdependence can only be fully grasped by acknowledging sociality as a natural and essential human attribute. Evolution has led humans to connect to survive, thrive, gain knowledge, and face challenges. Such relationships vary in nature and characteristics, from defensive or aggressive behaviours to positive dispositions of mediation and mutual help (Rusbult & van Lange, 2003). Therefore, human interactions are situationally driven and dictated by individual motives. Moreover, they are shaped by communicative behaviours underpinned by linguistic, non-linguistic, and intercultural competencies unfolding from a socially situated reciprocal instrumentality defined as interdependence. In this chapter, interdependence is described from social, psychological, and behavioural perspectives to cast light on cooperative group dynamics and help to describe interdependent relationships in language learning contexts.

1.1. A social theory of interdependence

It all starts with altruism, the driving force behind human relationships. Defined as actions conducted for the benefit of others, altruistic behaviours improve group productivity and social wealth. An underpinning assumption is that humans are willing to forego personal gains for others' welfare, knowing their actions will ultimately benefit their social groups. Despite individual variability in displaying such behaviours, it is clear that altruism entails a mutual-ity of beneficial interactions forming a network of indispensable reciprocal relationships (Thielmann, Spadaro and Balliet 2020). Therefore, interdependence can be outlined as a mutual reliance between individuals toward achieving common goals (Deutsch, 1949; Johnson & Johnson, 2005). Goals are pivotal in defining group dynamics, as they motivate people to bond and nurture interdependent relationships based on social and psychological gains. Forsyth (2019) listed communication, influence, need for satisfaction, unity, shared identity, task and goals among the most salient characteristics of interdependent groups. Therefore, group interdependence is rooted in the ability of team members to generate and share ideas, contributing to defining groups as evolving and interconnected entities of pro-social behaviours (Pietraszewski, 2020). Interdependent groups are also highly reliant on group size and the strength of members' social bonds. To quote Forsyth (2019, p. 5): «The larger the group, the more ties are needed to join members to each other and the group». From a group ecology perspective, these bonds can weaken over time as the motivation and needs of group members evolve. On the other hand, small-group social ties

are more likely to endure with time when based on genuine bonds of trust, mutual knowledge and motivation (Hemming, 2011; Heck, Bas & Kinzler, 2022). It is within these types of social networks that interdependence can be differentiated.

When one person's gains align with those of others, positive interdependence arises as promotive interactions increase group success rate based on trust, cooperation, positive power and conflict resolution amongst members (Oxford, 1997; Johnson & Johnson, 2005). However, not all interactions promote task-oriented group accomplishments. Individuals may display negative interdependence by promoting their scopes, hindering the success of others who pursue the same objectives. Negatively interdependent individuals increase their productivity by obstructing members' efforts through communicative tactics of threat, distrust and deceit (Deutsch, 1949). Forsyth (2019) provided a schematic outline of interdependence patterns by labelling group members alphabetically and characterising them in terms of reciprocal bonds (Fig. 1). Figure 1a displays mutual relationships as symmetric features, with arrows indicating action mutuality in a linear, symmetric structure. Figure 1b portrays the same sequential pattern, but without incorporating actional reciprocity. Meanwhile, Figures 1c and 1d demonstrate how these patterns are applied in hierarchical groups: figure 1c features equal reciprocity, while figure 1d exhibits uneven action mutuality.