Comparing Second Language English Speakers' Engagement with and Perception of Collaborative versus Competitive Board Games from a Self-determination Theory Perspective

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ABSTRACT

Comparing Second Language English Speakers' Engagement with and Perception of Collaborative versus Competitive Board Games from a Self-determination Theory Perspective

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International students pursuing further studies in English-speaking countries often encounter many challenges. However, few solutions have been proposed to connect them with other international students and increase their psychological needs satisfaction of autonomy, competence, and relatedness and engagement during L2 interaction. This study draws on Deci and Ryan's (1985) self-determination theory and adapting Philp and Duchesne's (2016) model of task engagement, this study compared the effects of a collaborative (*Mysterium*) and a competitive (*Camel up*) commercial board game on 54 international students' perceived basic psychological needs satisfaction of autonomy, competence, and relatedness on their engagement during board game interactions with other international students in an English-medium university in Canada. This study also explored the relationship between perceived psychological needs satisfaction and aspects of engagement with board game interactions. The secondary goal of this study is to explore international students' perceptions of needs satisfaction as a result of board game interactions and factors influencing their engagement with board game interactions. Adopting a counterbalanced design, transcripts of players' interactions were analyzed in terms of three dimensions of engagement: cognitive, social, and emotional. Post-game questionnaires on

psychological needs satisfaction and on overall engagement with board game interactions, as well as interaction data were analyzed through Wilcoxon signed-rank tests to compare the two types of board games. The relationships between psychological needs satisfaction and aspects of task engagement and were analyzed through Spearman's rho correlation analyses. Two groups of international students' responses to open-ended post-game questionnaires about needs satisfaction and factors affecting their engagement, focus group interviews, and transcripts of interactions were analyzed through the lens of self-determination theory.

The findings showed that participants playing the competitive board game experienced significantly higher level of autonomy than playing the collaborative board game, whereas participants playing the collaborative board game experienced significantly higher level of relatedness than playing the competitive board game. In terms of engagement with the board games, they had significantly higher level of cognitive engagement while playing the collaborative board game than the competitive board game, which was manifested in both their actual language use and questionnaire responses. However, although they reported significantly higher level of social engagement while playing the collaborative board game than playing the competitive board game, they produced significantly fewer responsiveness instances while playing the collaborative board game than playing the competitive board game. With respect to the link between BPN and aspects of engagement with the board game, it was found that international students who felt satisfied with their psychological needs of autonomy were emotionally engaged with the two types board games, whereas those who felt satisfied with their psychological needs of relatedness were socially engaged with both types of board games. Additionally, playing the collaborative board game enhanced their feeling of relatedness, which additionally made them emotionally engaged in English interaction with international students from diverse linguistic and cultural backgrounds. Moreover, their feelings of competence were

associated with responding to peer players' utterances and contribution (coded measure of social engagement). The study found that peer support and collaboration played a key role in satisfying the players' psychological need of relatedness, regardless of board game types. Game design also played a crucial role in fulfilling or thwarting their psychological need of autonomy and competence for both competitive and collaborative board games. As for factors affecting L2 English international students' engagement, the most prominent influencing factor for engagement with the two board games is game design, followed by game type. Collaboration with and support from peer players also played an important role in their engagement with the board games, especially the collaborative board game. Based on research results, implications for study abroad education were discussed.

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DEDICATION

To

my parents and friends

in recognition of their worth

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1. **Second language (L2) English speakers:** The term refers to speakers who can speak in English but whose first language is not English. L2 English speakers can be those who speak and use English as their second language in non-academic contexts, such as after-class social interaction and in the workplace and/or in academic contexts where learners receive formal English instruction in English as a Second Language contexts, such as the United States, Canada, the United Kingdom, Australia, and New Zealand. L2 English speakers may also be English as a Foreign Language (EFL) learners who learn English in non-English-speaking countries.
2. **International students:** International students in this study are used interchangeably with other terms, including internationally mobile students and international university students. International students come from culturally and linguistically diverse backgrounds and are pursuing their undergraduate or graduate degrees in a country other than their home countries. This study focuses on international university students who are L2 English speakers in an English-medium university in Canada and who no longer take any formal English language classes during their studies.
3. **Board games:** Board games are games with a set of rules, a playing board, and other playing materials, such as cards, pieces, dice, and tokens, that allow face-to-face interaction between or among players on a table (Back, 2020). Educational board games are specifically designed for education and for the learning of a particular subject, language, and more often than not, both language and a particular subject, whereas commercial board games are not specifically designed for L2 learning or teaching but are

created for recreational purposes. This study examined commercial board games played outside the classroom.

4. **Competitive board games:** Board games can be categorized into three types, including competitive, cooperative, and collaborative board games (Xu et al., 2011; Zagal et al., 2006). Competitive board games require players to use strategies to beat their enemy who are the fellow players of the board games. Players do not share the same goal. Rather, the main goal of the competition is recognition of superiority (Spanos, 2021). There is a sole winner at the end of the game.
5. **Collaborative board games:** In collaborative board games, all the participants work together as a team towards the same goal. Players in collaborative board games share the rewards or penalties of their resolution. If the team wins or loses, everyone wins or loses. The differences between collaborative board games and cooperative board games are that players of cooperative games may have different goals and payoffs and there is a sole winner (Zagal et al., 2006).
6. **Cooperative board games:** Cooperative board games refer to board games that required players to work individually, and their performance are assessed both individually and collaboratively (Malone & Lepper, 1987).
7. **Task engagement:** The term refers to 'heightened attention and involvement' in a task in which participation involves cognitive, social, behavioral, and affective dimensions of engagement (Philp & Duchesne, 2016). Task engagement may manifest in getting organized at the start of a task, distributing task roles, or interpreting task instructions (Svalberg, 2018). This study is concerned with international students' engagement outside the classroom when they are playing board games, a type of task from a task-based language teaching and interaction perspective.

8. **Self-determination theory (SDT):** Self-determination theory is a meta theory of motivation which has generated six mini-theories, including organismic integration theory, cognitive evaluation theory, basic psychological needs theory, goal contents theory, causality orientations theory, and relationships motivation theory (Al-Hoorie et al., 2022).
9. **Basic psychological needs (BPN) theory:** This mini-theory is one of the six mini-theories under self-determination theory. BPN theory postulates that satisfaction of learners' psychological needs (i.e., autonomy, competence, and relatedness) leads to intrinsic motivation and positive outcomes (e.g., engagement, well-being, and learning achievement) across diverse cultures, language types, instruction medium, and age groups.
10. **Autonomy:** The term refers to a sense of agency or ownership over one's choice), competence (feelings of mastery and capability). Autonomy has been identified as the most salient basic psychological need (Ryan & Deci, 2017. Frustration of their autonomy may lead to disengagement and ill-being, whereas satisfaction of autonomy leads to engagement and other positive outcomes.
11. **Competence:** The term refers to feelings of mastery and capability. In the BPN theory, the satisfactions of competence and relatedness also share reciprocal, interdependent relationships with each other and with autonomy. For example, in the school context, students who do not feel competent in a task (competence) will be less likely to engage with it on their own or (autonomy). However, students who feel connected with and supported by their peers and teacher (relatedness) will feel more willing to engage autonomously in class.

12. **Relatedness:** The term refers to a sense of belonging, social connectedness, and mutual respect. Like autonomy and competence, satisfaction of relatedness as a basic psychological need may contribute to learners or L2 speakers' well-being, engagement, and learning achievement.

Chapter 1. Introduction

The population of internationally mobile students around the world has expanded rapidly in the past few decades. In 2019, there were more than 6 million tertiary international students all over the world (UNESCO Institute for Statistics, 2022). As one of the best countries around the world where international students are interested in pursuing their post-secondary education abroad (U.S. News, 2021), Canada attracted 344,430 international students in Canadian universities in the 2018 and 2019 academic year (Statistics Canada, 2021). These international students came from diverse linguistic and cultural backgrounds. Asian students constituted 69 % of the international student population in different postsecondary institutions in Canada in the 2018 and 2019 academic year, followed by students from European countries (10%) and Americas (9%). Most of the international students came to Canada to further their studies in the fields of business, management, and public administration, architecture and engineering, social and behavioral sciences, humanities, and computer and information; many have the intention to contribute to the future workforce of Canada and obtain permanent residency in the country (Statistics Canada, 2021). Although international students meet English requirements for gaining admission to the four-year colleges or universities or graduate degree programs overseas, these students have encountered several major personal and adaptation difficulties outside their home countries, such as cultural barriers (Lehto et al., 2014; Li & Zizzi, 2018; Wright & Schartner, 2013; Wu et al., 2015), lack opportunities for social interaction (Lehto et al., 2014; Wright & Schartner, 2013), lack access to social contact and interaction with others using the target language (Crowther, 2020; Zhou & Rose, 2023), and lack of engagement with learning opportunities available (Li & Zizzi, 2018; Wang & Mercer, 2021; Wright & Schartner, 2013). These difficulties may not only

influence their learning outcomes inside the classroom but also reduce their opportunities to connect with other international students from linguistically and culturally diverse backgrounds.

Cultural barriers, defined as obstacles or challenges that arise from differences in cultural backgrounds and beliefs, is an important challenge facing international students. Studies have reported that international students in host countries often experienced cultural barriers, defined as obstacles or challenges that arise from differences in cultural backgrounds and beliefs (Cena et al., 2021; Lehto et al., 2014; Li & Zizzi, 2018; Wright & Schartner, 2013; Wu et al., 2015. Based on interview data with 10 international undergraduate and graduate students (nine from Asian countries) in the United States, Wu et al. (2015) revealed that many international students think that they were marginalized in academic and social activities. Also situated in an American university campus, focus group interviews with 59 domestic and international students showed that international students believed that different cultural personality and value systems prevented them from having meaningful intercultural interaction with domestic students and international students from different cultural backgrounds. Besides, the participants noted that lack of common topics, difficulties in pronouncing foreign names and recognizing faces of people from different cultures are hindrances associated with cultural barriers (Lehto et al., 2014). In Li and Zizzi (2018), May and Bella, two international graduate students in the United States, experienced culture barriers when interacting with domestic students in the United States. Both students mentioned that they had nothing in common with domestic students (e.g., topics for chat, hobbies); however, both May and Bella had several co-national friends and friends who were also international students from Asian countries. International students pursuing post-graduate degrees in United Kingdom also expressed facing a cultural barrier in Wright and Schartner's (2013) study. Similar to Li and Zizzi (2018), international students were cognizant of

cultural differences between Eastern countries and Western countries and admitted that they could not find very common topics to talk when interacting with domestic and international students from other countries. These studies have suggested that promoting social interaction that transcends the boundaries of cultures is important because it may encourage international students to get acquittance with students from other cultures and establish multicultural friendships.

Another great hindrance in international students' residence abroad is that they often suffer from lack of opportunities to interact with others in English after class. Investigating perceptions of interaction from 14 international graduate students who originated from Asian countries in British universities, Wright and Schartner (2013) revealed that their reluctance to take an initiative in seeking the learning activities and social interaction available are driven by external and internal factors, such as lack of opportunities to speak with English L1 speakers, personality, laziness, and weather, with a lack of opportunities for social interaction being the most commonly mentioned reason by the research participants. Lehto et al. (2014) investigated 59 students' view of intercultural interactions on an American university campus and found both domestic and international students reported rather limited interactions with both parties other than class projects, dorms, sports, student organizations, and hobby-based clubs. Akin to Wright and Schartner (2013), international students in Lehto et al. (2014) were sometimes reluctant to interact with others who did not share the same or similar cultural backgrounds with them. As a result, they often used their mother tongue for social interaction and did not have sufficient exposure to target language input and interaction outside the classroom. Since interaction in the target language can facilitate the learning of different aspects of L2 skills, such as grammar (Mackey, 1999; McDonough & Chaikitmongkol, 2010), vocabulary (Kim, 2008; Zhou & Wang,

2021), and pragmatics (Baron et al., 2020; Taguchi & Kim, 2016), knowing how to better increase social interaction opportunities for international students outside the classroom can make their acquisition of an L2 more efficient.

In addition to a dearth of opportunities for social interaction, research has also revealed that most international students lack access to social contact interaction with others. Collecting data using a language contact questionnaire, a study abroad social network survey, and semi-structured interviews (26 participants) with 84 L1 Chinese foundation international students (i.e., students who take one-year preparation courses to help them meet the language or academic requirements of degree studies) in the first term and the second term of study in United Kingdom, Zhou and Rose (2023) found that the participating students reported a high percentage of L1 Chinese use, high academic L2 English contact, and mainly social networks with L1 Chinese speakers during study abroad, with little variation over the academic year. The high amount of academic contact suggests that these students' interactive, spoken English contact was even less than their written English contact. The study also showed that L1 Chinese students' friendship patterns were made up of several closest co-national friends, some multi-national (international) friends, and few local acquaintances and that their relationships with other international students were mostly superficial. The practical implications of the research findings are that universities can offer international students workshops on cross-cultural adaptation and networking and organize some club activities to help Chinese international students easily foster friendship with students from different countries who may share the same hobbies with them. In addition to Zhou and Rose's study, Angela, the Chinese international student in Crowther (2020), experienced rejection by American students due to racism and American students' lukewarm attitudes towards interaction with foreigners. Angela's relatively limited English proficiency made her turn to her

Chinese community for the sense of belonging, thereby limiting her access to interact with both L1 and other L2 speakers of English. These research findings implicate that access to social contact and interaction hinges on individual characteristics, such as language proficiency, cross-cultural adaptability, and personality (see also Mitchell, 2015; Taguchi et al., 2016) and that L1 use is prevalent in international students' residence abroad (also see Kinginger, 2008). Having interactive L2 social contact can have a rather positive influence on different areas of international students' target language development, such as vocabulary (Dewey, 2008; Zhou & Baffoe-Djan, 2023), pragmatics (Taguchi et al., 2016; Tang et al., 2021), and speaking (Dewey et al., 2012). What remains unclear is whether and to what extent such lingua franca social interactions between international students from different linguistic and cultural backgrounds offer them opportunities to speak and interact in the target language.

Even when learning activities and other opportunities for social interaction are readily available, international students' engagement with these activities and social interaction opportunities plays a crucial role in L2 learning and may be affected by learner-internal and learner-external factors. Li and Zizzi (2018) reported that two international graduate students in the United States, May from Thailand and Bella from Indonesia, demonstrated high engagement in after-class physical activities (mainly played badminton) and chat on a weekly basis through observations and individual interviews. Although no engagement indicators were examined in the study, the data showed that the two students enjoyed their conversation and their time together, which helped build friendship. The study implicates that intercultural communication and multicultural friendship can be developed and fostered through physical activities. Wang and Mercer (2021) explored factors contributing to willingness to engage in informal German learning during a L1 Chinese woman's residence (the first author) in Austria. Collecting data

from interviews and learning journal entries, the study showed that multifarious factors influenced the German learners' willingness to engage in German learning beyond the classroom, including cognitive (e.g., learning goals, prior knowledge, sense of progress), affective (e.g., facilitative emotions), social (e.g., social situations, social relationships), motivational (e.g., personal interest, desire to communicate), and behavioral (e.g., strategic behavior, exercise of agency).

Considering several difficulties and challenges facing international students and the international students' potential contributions to the diversity of culture and community, it is important to offer additional interaction opportunities and figure out the ways to increase international students' engagement in social interactions with one other. This study proposes the use of board games as additional opportunities to connect international students and engage them in social interaction, and compares two types of board games in terms of L2 English speakers' engagement during board game interactions and psychological needs satisfaction after playing each board game. This study also investigates the contextual and individual factors that influence international students' engagement and psychological needs satisfaction from L2 speakers' perspective. Board games have numerous benefits, such as facilitating engagement in an L2 and mental health of people and fostering interaction and connection with other people. However, to effectively harness their potential for L2 interaction and engagement, we need a better understanding of the underlying mechanisms of board game interaction by comparing L2 speakers' psychological needs satisfaction and engagement with different kinds of board games. This inquiry is important because international university students may participate in extracurricular activities, but the amount and type of their active participation and involvement in a learning task or activity may vary from person to person and may be influenced by a variety of

individual and contextual factors (Hiver et al., 2021 b; Xiao, 2015). Knowing what type and which aspects of board games facilitate international students' basic psychological needs and engagement can better help policy makers and study abroad educators and coordinators make concrete recommendation on the use of board games as social opportunities to bring together international students from diverse backgrounds.

Purpose of the Study

Based on the aforementioned rationales, the overarching goal of this dissertation is to investigate whether international students' cognitive, emotional, and social engagement during social board game interactions is affected by board game type (i.e., competitive versus collaborative board game) and whether their psychological needs satisfaction may differ as a result of board game type. Central to this goal is to determine whether international students' perceived psychological needs satisfaction are linked to their engagement with board game interactions. This study also aims to uncover international students' perception of satisfaction of psychological needs as a result of board game interactions and attributions of engagement with board game interactions.

Significance of the Study

This dissertation study aims to advance current understanding of L2 English users' engagement beyond the classroom in the fields of second language acquisition (SLA) and task-based language teaching (TBLT) in the following aspects:

First, give the domain-specificity of learner engagement (Hiver et al., 2021 b; Hiver & Wu, 2023), empirical research on learner engagement with tasks which are not commonly represented in the existing task engagement literature may potentially broaden our knowledge of

the construct. Therefore, the present study investigates board game task interactions that is not part of formal instruction, with an eye towards expanding research literature on task engagement in the classroom to engagement with out-of-class tasks in the form of board games.

Second, this study contributes to current scholarship of task engagement by drawing on a self-determination theory. In response to a call for applying the theory to task-based learning and teaching research (Leeming & Harris, 2022), the present study focused on the comparison between two types of board games (i.e., competitive versus collaborative) in terms of their potential to fulfill L2 English speakers' psychological needs and explored the relationships between fulfillment of different psychological needs and aspects of task engagement with the board games, a research area that has been underexplored in both learner psychology and task engagement literature.

Third, most existing studies have examined the effect of one or two pre-determined factor on task engagement, but this study will explore factors affecting international students' engagement towards tasks. Owning to complex dynamic systems turn in SLA, it is reasonable to speculate that multiple learner-external and learner-internal factors play a role in task engagement across time. With an in-depth understanding of multiple factors leading to international students' engagement in extramural learning tasks, language teachers can better recognize resources that engage L2 learners within classes.

Chapter Synopsis

In this dissertation, Chapter 1 offers a glimpse into background of the study and states the problems facing international students when they are studying abroad, followed by stating

research problems. The chapter ends with an outline of the purposes and significance of the study.

The second chapter of this dissertation reviews studies and literature on self-determination theory and the construct of learner engagement inside and outside the fields of SLA and TBLT, activity theory, and types of board games and their benefits for language learning.

Following the literature review is Chapter 3, which concerns research methods used for this study, including research participants, research design, research materials and instruments, procedure of the study, and data analysis and coding. Details in the research materials and instruments can be found in the form of appendices at the end of this dissertation.

Chapter 4 presents the quantitative and qualitative results of the study by drawing on data from multiple sources, including audio and video recordings of board game interactions, semi-structured focus group interviews, and open and closed-ended questionnaires. The chapter unfolds the results of the study by presenting each of the four research questions and its corresponding results.

Chapter 5 is devoted to discussion of the research findings organized by research questions. The discussion will compare and contrast the study's results with previous findings on task engagement and game-based language learning. Self-determination theory will be used to interpret both quantitative and qualitative data regarding L2 speakers' perceived needs satisfaction after playing the competitive and collaborative board games and engagement with the board games. Implications of the study for study abroad education and out-of-class social interaction, limitation of the study, and future research directions are discussed.

Finally, Chapter 6 of this dissertation revisits the purpose of the study and ends with a summary of main findings

Chapter 2. Literature Review

This chapter presents an in-depth review of existing literature on learner engagement, further pointing to a need for empirical investigations into engagement with learning tasks in the form of board games outside the classroom. The chapter begins with an introduction of self-determination theory and review of existing SDT studies that focused on out-of-class learning. Following this subsection is an overview of studies on learner engagement in the educational psychology field, showing that student engagement is a multidimensional construct. Following this synthesis of learner engagement outside of the fields of SLA and TBLT is an introduction to task engagement in the fields of SLA and TBLT, which further shows the multidimensional nature of task engagement and highlights the need to broaden the construct to other forms of language learning tasks and in a variety of contexts. The subsection compares different models of engagement in the fields of SLA and TBLT and argues for their limitations and strengths to account for engagement in novel tasks outside the classroom. Following the synthesis and critiques of existing models of engagement, I review existing literature on task engagement and other related constructs and argue for anchoring task engagement or learner engagement at the task level to a boarder context by considering the individual and contextual factors mediating L2 speakers' engagement with board game interactions. I then introduce different types of board games and their benefits for L2 interaction inside and outside the classroom, followed by a review of literature on the use of board games for second language learning.

2.1 Self-determination theory

Self-determination theory (SDT) was introduced to the field of psychology in late 1970s and early 1980s (Ryan & Deci, 1985). SDT is a meta theory of motivation which has generated six mini-theories, including organismic integration theory, cognitive evaluation theory, basic psychological needs theory, goal contents theory, causality orientations theory, and relationships motivation theory (Al-Hoorie et al., 2022). SDT has been widely applied to various fields, such as sports, online education, and business (Al-Hoorrie et al., 2022; Ryan, 2022). Since late 1990s, SDT has started to make inroads into the field of applied linguistics with the work published by Noels and colleagues (e.g., Noels et al., 2000, 2019, 2020). Ever since then, there has been a proliferation of L2 studies drawing on one or multiple mini-theories of SDT. One mini-theory that has attracted due attention is basic psychological needs theory (BPN theory). BPN theory postulates that satisfaction of language learners' basic psychological needs of autonomy (a sense of agency or ownership over one's choice), competence (feelings of mastery and capability), and relatedness (a sense of belonging, social connectedness, and mutual respect) enhances their intrinsic motivation, which subsequently leads to learner engagement and positive outcomes (e.g., well-being, L2 learning achievement) (Mynard & Shelton-Strong, 2022; Noels et al., 2020; Ryan & Deci, 2017). On the other hand, frustration of language learners' psychological needs may lead to disengagement and ill-being.

A large number of studies drawing on BPN theory have revealed the relationships between BPN and other variables, such as motivation, engagement, and foreign language emotions in the classroom (e.g., Alamer & Al Khateeb, 2023; Dincer et al., 2019; Feng et al., 2023; Noels et al., 2019; Oga-Baldwin et al., 2017; Zhou et al., 2023), and the interrelationships

among BPN, SDT orientations (controlled and autonomous motivation) and L2 knowledge (e.g., see Alamer, 2022 for vocabulary knowledge) or L2 learning achievement (e.g., Elahi Shirvan & Alamer, 2022). Many studies have also looked into the effect of significant others, such as teachers and peers in satisfying language learners' psychological needs (e.g., Noel et al., 2020) and a specific kind of instruction or intervention on learners' satisfaction of psychological needs (e.g., see Davis, 2022 for world language education; Printer, 2023 for collaborative story creation), Most studies are quantitative studies using survey or questionnaires as methodological tools (Al-Hoorie et al., 2022), and few studies have compared different types of instructional methods or tasks on L2 learners' psychological needs satisfaction and engagement. This echoes Al-Hoorie et al.' (2022) meta-analytic findings that many existing studies have provided superficial practical applications to real-world contexts, calling for SDT interventions to connect L2 learning process and outcomes and clarity in research aim and design.

Similar to the above classroom studies, although there is a small yet growing body of research on out-of-class learning drawing on BPN theory, existing studies have not compared the effects of different types of tasks on L2 speakers' fulfillment of psychological needs and their relationship with engagement with task interactions. Collecting qualitative data through university students' self-reported questionnaires, Shelton-Strong (2022) found that advising sessions for foreign language learning taking place at a university self-access learning center served as a form of social scaffolding and psychological support. This autonomy-supportive environment fostered 66 L1 Japanese speakers' psychological needs for autonomy, competence, and relatedness. Also situating in the context of a university self-access learning center, Watkins (2022) investigated the extent to which participation in an interest-based English learning communities in a self-access learning center of a Japanese university support learners' basic

psychological needs and how the leaders in the learning communities enhanced university students' psychological needs satisfaction. Collecting questionnaire responses from 31 learners and interview data from two learners and four leaders, Watkins's study showed that interest-based learning communities made learners to feel relatedness with others because of their shared interests and learning goals. Learners also experienced autonomy through self-initiated control over their learning. In such a relaxing and enjoyable learning environment, the learners also felt competent through their improvements and contributions to the learning community. The study also reported that the leaders played an important role in learners' needs satisfaction. By taking off their role as leaders, they helped learners feel more connected with all the members of the community. The leaders also gave choices to learners, which was crucial for their autonomy. In addition, the leaders provided positive feedback to the learners and gave them chances to contribute to the learning community, which also fulfilled learners' psychological need for competence. Situating in an online learning context, Li et al. (2022) compared two groups of EFL university students (around 200 participants each) in terms of their perceived psychological needs satisfaction, motivation, and writing performance. The experimental group received an autonomy-supportive intervention in which they freely chose writing tasks to work on, received scaffolding in the form of generic structures of an essay, and interacted with peers and teachers actively to exchange ideas on an online writing platform, whereas the comparison group only completed writing homework assigned by their teachers. The results demonstrated that the experimental group had higher motivation and better writing performance than the comparison group, confirming that an autonomy-supportive online writing environment can fulfill learners' basic psychological needs for autonomy, competence, and relatedness.

Take together with the studies reviewed above, most studies carried out in out-of-class learning contexts are qualitative in nature, and thus the results may not be generalizable. Moreover, most of these studies have focused only on how a specific context and intervention satisfy L2 speakers' psychological needs and explained why learners act, what sustains their action, and how they perceive their environment. However, these studies have not accounted for the action itself. In other words, what L2 speakers' actually do, feel, and think (i.e., their engagement) has been underexplored in out-of-class L2 learning contexts. Given that out-of-class L2 learning research is still in its infancy, further research is needed to demystify L2 English speakers'perceived psychological needs satisfaction and task engagement in diverse out-of-class learning contexts. It is also important to use mixed-methods to shed light on L2 speakers' perceived psychological needs satisfaction and task engagement because combining quantitative and qualitative evidence can provide rich insights into the issue under investigation. Investigating what type(s) of tasks leads to satisfaction of what kind of psychological needs can help understand which tasks to choose or design to better foster L2 speakers' intrinsic motivation and task engagement, a response to a call made by TBLT scholars like Leeming and Harris (2022). The next subsection will review literature on student engagement from the field of psychology before I turn to task engagement.

2.2 Learner engagement outside second language acquisition and task-based language teaching fields

The notion of engagement was proposed in the field of educational psychology in the 1980s. Interest in this construct stems from the desire to understand students' learning achievement, with

the aim of preventing school dropout and promoting completion of academic studies (Finn, 1989; Mosher & McGowan, 1985). In this field, engagement is generally referred to as student engagement and can be understood as a student's active involvement in a learning activity (Reeve, 2012). Starting from 1990s, greater attention has been given to the psychological aspects of student engagement. Newmann's (1992) seminal work defined engagement as "the student's psychological investment in and effort directed toward learning, understanding, or mastering the knowledge, skills, or crafts that academic work is intended to promote" (p. 12).

Newmann's work led to a proliferation of different models of student engagement which are composed of somewhat similar subconstructs (Fredricks et al., 2004; Reschly & Christenson, 2012; Reeve, 2012; Skinner et al., 2009) and provide a basis for learner engagement in the fields of SLA and TBLT. Fredricks et al.'s (2004) review article encompassed behavioral, cognitive, and emotional engagement. The construct of engagement in Skinner et al. (2009) includes behavioral (action initiation, effort/ exertion, attempts/ persistence, intensity, attention/ concentration, absorption, involvement) and emotional engagement (enthusiasm, interest, enjoyment, satisfaction, pride, zest, vitality). Reeve's (2012) engagement model consists of four components: behavioral (on-task attention and concentration, high effort, high task persistence), emotional (presence of task-facilitating emotions, absence of task-withdrawing emotions), cognitive (use of sophisticated, deep, and personalized learning strategies, seeking conceptual understanding rather than surface knowledge, use of self-regulatory strategies), and agentic engagement (proactive, intentional, and constructive contribution to the flow of the learning activity, enriching the learning activity, rather than passively receiving it as a given). Similar to Reeve's model, Reschly and Christenson's (2012) engagement model is made up of four

components, including affective (belonging/ identification with school, school connectedness), cognitive (self- regulation, relevance of school to future aspirations, value of learning), behavioral (attendance, participation, behavioral incidents), and academic engagement (time on task, credit hours toward graduation, homework completion rate and accuracy, class grades). Although differences exist in Fredricks et al. (2004), Reschly and Christenson (2012), Reeve (2012), and Skinner et al.'s (2009) student engagement models, these models all encompass behavioral and emotional/affective facets of engagement. Noticeable variations can be found in the way the construct of engagement is operationalized in these models. Student engagement in these models is operationalized at the activity level (e.g., on-task attention and concentration, presence of task-facilitating emotions) and/ or at the school or course level (e.g., school connectedness, class grades).

In addition to the above student engagement models, the psychological or emotional dimension of student engagement has also been investigated within the framework of flow theory (Csikszentmihalyi, 1990; Shernoff et al., 2003) or in relation to flow theory (Kurtuluş & Eryılmaz, 2021), which shaped the theoretical basis of some existing studies in the fields of TBLT and SLA. According to Csikszentmihalyi (1990), flow is an optimal state of immersed concentration in which attention is centered on an enjoyable activity and is an ideal state between boredom and anxiety. In Shernoff et al.'s (2003) seminal work, there are three components of student engagement with an activity which constitute flow experience: concentration, interest, and enjoyment. All these three components are pertinent to learning. Engagement is high when the three components are simultaneously aroused (Shernoff, 2013). Looking at student engagement from the perspective of flow, Shernoffstudy found several aspects of activities were

associated with high engagement, including high perceived challenge and skill necessary to complete the instructional activity (i.e., group work and individual work), high relevance of the instructional activity, and high control of the learning situation. Similar to Shernoff et al.'s (2003) study which indicated flow as an emotional dimension of student engagement, Kurtuluş and Eryılmaz (2021) revealed a highly significant relationship between flow experience and student emotional engagement with subject learning (e.g., math) in math courses. The study also showed a need for investigating engagement on different dimensions (emotional, behavioral, and cognitive) because flow experience was associated only with emotional engagement but not cognitive and behavioral engagement. Taken together, these studies, examining the construct of flow when students work on class activities (Shernoff et al., 2003) or complete the course (Kurtuluş & Eryılmaz, 2021) in the domains outside SLA and TBLT, have suggested flow is part of or at least highly related to the emotional dimension of student engagement. Taking this lesson, this suggests that applied linguists should consider the components of flow as part of emotional engagement can better demystify the construct of learner engagement. The present study therefore incorporated components of flow into the questionnaire items on emotional engagement.

2.3 Models of task engagement

In this section, I will first distinguish the concept of engagement with language from task engagement. Following a detailed introduction of task engagement, I introduce the most recent model of language task engagement to pave the way for the present study. In the field of applied linguistics, learner engagement can manifest in engagement with language (EWL; Svalberg,

2009, 2018, 2021), task engagement (Egbert et al., 2021; Philp & Duchesne, 2016), and engagement with language use within the task engagement framework (Lambert & Aubrey, 2023; Lambert & Zhang, 2019). EWL refers to how learners develop language awareness and conscious knowledge about languages. L2 speakers can engage with language in formal or informal contexts where the L2 is used (Svalberg, 2018). EWL and task engagement may or may not occur together, but these two types of engagement work in tandem with contextual engagement, which refers to learners' engagement in a broader context, such as school and school clubs (Svalberg, 2018). Task engagement can be distinguished from EWL when L2 learners get organized at the start of a task, distribute task roles, or interpret task instructions (Svalberg, 2018). In this study, task engagement was used to better capture L2 English speakers' engagement with the board games. Svalberg's conceptualization of EWL is the first foray into recognizing the multidimensional nature of the 'learner engagement' construct in applied linguistics and SLA, showing a departure from previous mono-dimensional view of the construct which has focused mainly on either behavioral engagement (e.g., Dörnyei & Kormos, 2000) or cognitive engagement (e.g., Storch, 2008). Svalberg (2009, 2018, 2021) argued that social and emotional states should be considered in addition to cognitive dimension (i.e., why some linguistic or language related behaviors facilitate L2 learning). In Svalberg's framework, EWL encompasses three interconnected states: cognitive (e.g., focused attention, alertness, and mental effort), social (e.g., interactiveness, support or scaffolding, responsiveness, and initiation of interaction), and affective (e.g., willingness to engage, purposefulness, and autonomy). EWL is situated in relation to language awareness, in which language awareness is perceived both as an outcome and a resource feeding into the process of engaging with language. The EWL framework enhances our understanding of the complex process through which language awareness is constructed and

manifested on multiple dimensions. Language-related episodes (or collaborative dialogues where learners discuss the target language or correct each other) and engagement with corrective feedback are examples of EWL (Svalberg, 2009, 2018). However, EWL does not specifically account for engagement with tasks but focused on language-related episodes which international students seldom produce when they interact with others informally in English outside the classroom.

After the introduction of the EWL framework, studies have adopted the framework to study face-to-face and synchronous computer-mediated task interactions (Baralt et al., 2016) and language play in English immersion camps (Ahn, 2016). Baralt et al. (2016) looked at L2 Spanish intermediate-level learners' cognitive, emotional, and social engagement when they worked on cognitively simple or complex interactive, picture-prompted story retell tasks in person or during synchronous computer-mediated communication in pairs. Baralt and her colleagues found that more cognitive engagement (e.g., attention to linguistic forms), social engagement (e.g., supportive interaction) and emotional engagement (e.g., positive feelings) in the face-to-face context, especially during the more complex task, and that these three types of engagement were almost absent in the synchronous computer-mediated communication context. The researchers argued that social and affective engagement played an important role in L2 Spanish learners' cognitive engagement (i.e., deploy their attentional resources) with language forms. The investigation into EWL as a multidimensional construct can also be seen in other studies. For example, Ahn (2016) investigated Korean secondary school students' engagement with ludic language play in English immersion camps and found that language play process provided them an opportunity to show their language awareness, particularly their cognitive engagement with

language forms and functions. Besides cognitive engagement in playful interactions, the Korean L2 English learners demonstrated affective engagement (e.g., willingness to participate, laughter, animated intonation to signal enjoyment) and social engagement (laughter and active reproduction and recreation of their peers' utterance). These findings have further supported learner engagement is a multidimensional construct. The present study focused on learner engagement with task, which focused on how L2 English speakers get organized at the start of a task, distribute task roles, interpret task instructions, or discuss their progress of the task.

Learner engagement with task bears close resemblance to the EWL framework in that both have recognized the multidimensional nature of learner engagement. The multidimensional construct of task engagement can be best understood as a state of 'heightened attention and involvement' in a learning task in which participation involves cognitive, social, behavioral, and affective dimensions of engagement (Philp & Duchesne, 2016). Informed by Maehr's (1984) theory of personal involvement from the field of educational psychology which acknowledges both external (e.g., task design and implementation) and internal (e.g., learner's subjective appraisal of a task and beliefs) factors can influence personal investment, Philp and Duchesne (2016) also acknowledged task engagement as a multidimensional construct which encompasses behavioral, cognitive, emotional, and social engagement.

According to Philp and Duchesne (2016), cognitive engagement has to do with sustained attention and mental effort. In collaborative tasks or activities, cognitive engagement manifests in questioning, completing a peer's utterance, exchanging ideas, giving explanations, the use of phrases such as "I think," the use of causal connectives such as "because," and making evaluative comments, etc. and is often operationalized as language-related episodes (LREs, which refers to

any part of a conversation where students talk about their language use or correct errors made in each other's language production) (Swain & Lapkin, 1995, 1998). Nonverbal behaviors like facial expressions and body positioning can also be indicators of cognitive engagement, though verbal report (e.g., stimulated recall) will make it more evident to researchers. Evidence of cognitive engagement may come from audio and visual data, transcripts of task-based interaction, observations, retrospective questionnaires, and stimulated recall.

Behavioral engagement is typically described in terms of time on task and participation as reflected in quantity of talk (e.g., number of minutes spent on and off task, number of words and turns). In task-based studies, indicators of behavioral engagement can be on-task behaviors such as answering questions or participating in tasks. Self-reported measures may include questionnaire items relating to participation and effort. The measures of behavioral engagement reflect two different views of behavioral engagement in the existing literature: dichotomy versus continuum.

The construct of emotional engagement is defined and operationalized somewhat differently, contingent on the foci of research. Broadly speaking, emotional engagement can be defined as the affective nature of learners' involvement during task, which may include positive and negative emotions, such as enjoyment, interest, enthusiasm, feeling of connection with peers, anxiety, boredom, and frustration. In addition to positive and negative emotions, Baralt et al. (2016) included purposefulness and autonomy. Dao and Sato (2021) included interest, enjoyment, and anxiety as self-reported questionnaire items for emotional engagement, and found interest and enjoyment related to emotional engagement. Lambert and Zhang (2019) used anxiety and motivation questionnaires which tapped into several aspects of anxiety (expression,

information, difficulty, and confidence) and motivation (preference, enjoyment, interest, involvement, and willingness to repeat). A handful of task-based studies have also operationalized emotional engagement as part of or in relation to flow, which is described as a sign of "ultimate task engagement" (Philp & Duchesne, 2016, p. 59) and includes interest, control, focus, and a balance of skills and challenge (Aubrey 2017 a, b; Egbert, 2004). Originally from the educational psychology domain, flow is regarded as an optimal state of immersed concentration in which attention is centered on an enjoyable activity and is an ideal state between boredom and anxiety (Csikszentmihalyi, 1990) and have been conceptualized as a construct which includes concentration, interest, enjoyment, immersion, skills, and challenge (Shernoff et al., 2003, 2014). To adequately embrace the conceptual diversity of emotional engagement and to cater to the goals of this dissertation study, emotional engagement is operationalized as a combination of components in the existing task engagement studies and engagement studies that draws on flow as the theoretical framework, such as enjoyment, interest, and boredom.

Social engagement refers to peer interlocutor's supportiveness and willingness to cooperate. It can be seen when learners listen to one another, draw from one another's expertise and ideas, and provide feedback to one another, etc. These interactional behaviors demonstrate mutuality and reciprocity between task interlocutors. Although the construct is the least explored in current student engagement (including task engagement) studies (Hiver et al., 2021 b), several researchers (e.g., Sato & Ballinger, 2012; Storch, 2008; Svalberg, 2009, 2018) have suggested or pointed out that L2 learners are more effective in language learning when they are socially engaged in task-based interaction.

Inspired by Philp and Duchesne's (2016) task engagement model and building on prior work by Lambert (1998, 2002, 2004), Lambert et al. (2017) proposed engagement in language use (ELU), a task engagement model which is multi-dimensional and brings different discourse analytic measures together, including number of words produced, number of turns taken, time on task, number of elaborative clauses, number of negotiation moves for clarifying content, number of negotiation moves for clarifying language, and number of backchannels. Different from Philp and Duchesne's task engagement model, Lambert et al.'s model of ELU initially consisted of behavioral, cognitive, and social engagement. Pragmatic engagement, a term used to capture learners' pragmatic language use and behaviors, such as tentativeness, self-protection, cooperation, collaboration, and face saving, was added to this model of ELU after Lambert and his colleagues found out that L2 learners used pragmatic devices, such as softened tone, affiliative laughter, tag questions and mitigated questions to save their interlocutor's face during task interaction (Lambert & Zhang, 2019; see also Lambert & Aubrey, 2023 for a discussion).The present study adapts Philp and Duchesne's (2016) model of task engagement as the key construct because the model takes into account broader dimensions of L2 learners' engagement with tasks, such as getting organized at the start of a task, distributing task roles, interpreting task instructions, and emotional responses to the task, not simply engagement with language.

Overall, while discourse analytic methods provide insights into learners' cognitive, behavioral, and social engagement during task performance and are relatively objective measures, learners' emotional engagement may interact with other facets of task engagement. Lambert and his colleagues argued that because emotional engagement cannot be reliably measured through

L2 learners' discourse, other measures that tap into learners' perception and emotional reaction during task performance are needed. By way of illustration, a learner may laugh due to a variety of positive (enjoyment, intensive focus) or negative (embarrassment, anxiety, confusion) feelings and emotions he or she experiences in a particular situation. It is therefore difficult to conclude that a specific learner behavior (e.g., laughter, smile) is associated with positive or negative emotion(s) a leaner experience, rather than evidence of conversational management, such as strategically enhancing rapport with the interlocutor (Lambert & Aubrey, 2023). Instead of using discourse analytic methods, researchers have often used post-study questionnaires and/or discourse analytic measures (i.e., laughter, e.g., Dao, 2017; Dao & McDonough, 2018; Tsoi & Aubrey, 2023) to capture emotional engagement during task performance. Recently, other novel, more robust measures such as idiodynamic method (a participant rates his or her emotion on a per second timescale, followed by stimulated recall interview), non-verbal behavioral methods (e.g., rating and coding of facial expression, gaze behavior, body movement, and gesture), and psychophysiological methods (non-invasive commercial grade technology that analyzes learners' changing mental activities through measures of learners' autonomic and unconscious reactions to the task materials they experience) are introduced to the field because they can effectively capture L2 learners' fluctuating emotional engagement during task performance (e.g., Chen, 2023; Kołsut & Szumilas, 2023; Lambert et al., 2023; see also Lambert & Aubrey, 2023 for a discussion), but this line of research is still in its infancy.

Based on the above review of different models of task engagement, Egbert et al. (2021) proposed an evidence-based model of language task engagement based on existing studies and online survey of ESL and EFL teachers, students, and researchers' viewpoints. Indicators are the

characteristics that define learner engagement with tasks and are part of the construct of learner engagement (e.g., learner effort and enthusiasm), whereas facilitators refer to contextual factors that affect learner engagement and are factors outside the construct of learner engagement with tasks (e.g., teacher support, task design) (Skinner et al., 2009). In Egbert al.'s model, task engagement facilitators that may promote task engagement when integrated into task elements (content, topic, instructional groupings, strategies, resources, goals, process, tools, assessment, product) encompass authenticity (personal connection and relevance, helping learners achieve their academic or life goals), social interaction (interaction with peers, teachers, or native speakers), learning support (e.g., equal support of all students, clear instructions or guidance), interest (personal interest in the task), autonomy (learner has choice and responsibility to take control over their learning), and challenge (task difficulty level is optimal to push learners to think and involve in learning). When learners are engaged in a language task by the facilitators integrated into language learning tasks, they may exhibit different signs (i.e., indicators) of task engagement, which further lead to various task outcomes (language or content learning, task performance, attitudes towards the task), contingent on the context. The model reveals five indicators of task engagement, including behavioral, cognitive, emotional, agentive, and social. All the indicators have been investigated in existing studies, except agentive dimension of task engagement (learner's agency as reflected in learner action on the learning task), which has received scant attention (Egbert et al., 2021). Egbert et al.'s (2021) model was proposed to demystify task engagement in language classroom, so whether it is applicable to account for L2 learners' engagement with tasks as extramural learning opportunities (see Hiver et al., 2021 b for methodological synthesis; Reinders & Nakamura, 2021) remains unknown. In the context of social board game interaction, several facilitators and indicators of task engagement found in the

evidence-based model might also be substantiated; however, it is presently unclear to what extent all the components presented in Egbert et al.'s model are applicable to uninstructed learning context. Considering the situated, context-dependent nature of task engagement, it is important to focus on board game interaction, one of the popular extramural learning opportunities in Canada (Clement, 2019; Philp & Duchesne, 2016). Due to a paucity of studies on task engagement that were carried out outside the classroom, the following section will review existing task engagement studies conducted to inform L2 learning inside the classroom and in online classes.

2.4 Existing studies on task engagement

In this section, I will review existing studies on task engagement by identifying two research strands: One strand has taken a bottom-up approach that examines the effect of one or two variables (individual learner, task, interlocutor or the combined effects of these variables) on task engagement. Another strand has adopted a top-down, open-ended approach to look at a variety of individual, social, and contextual factors contributing to task engagement. This section ends with my argument that both lines of inquiry are necessary to provide a more comprehensive picture of the impact of task effect and other factors on L2 English speakers' engagement with the board games.

To date, studies which have conceptualized task engagement by drawing on Philp and Duchesne's 2016 framework have taken, in most cases, a bottom-up approach to examining a variety of influencing factors of L2 learner engagement with learning tasks in a face-to-face classroom, online classroom, or research lab. These studies have investigated the role of task design (Lambert et al., 2017; Lambert & Zhang, 2019; Nakamura et al., 2021), task goal

orientation (Dao, 2021), task type (Qiu & Cheng, 2022), task mode (Aubrey & Philpott, 2023; Carver et al., 2021), content familiarity and task repetition (Qiu & Lo, 2017), and task type and topic familiarity (Xu & Qiu, 2021) in L2 learners' task engagement. For example, Lambert et al. (2017) examined the effects of learner-generated task content with those of teacher-generated content on 32 Japanese EFL learners' narrative task engagement as manifested in their language use and found that the learners were cognitively, behaviorally, socially, and emotionally more engaged in tasks that required them to generate task content on their own. In a follow-up study, Lambert and Zhang (2019) compared task engagement as reflected in engagement with L2 use of four L2 learners (two L1 Japanese learners of English and two L1 Japanese learners of Chinese) during three types of communicative tasks (i.e., instruction, opinion, and narrative; 12 tasks in total). Lambert and his colleague found that both L2 English and Chinese learners exhibited higher levels of social (number of affiliative backchannels) and cognitive (number of elaborative clauses) engagement with language use through tasks that permitted them to generate content on their own than those who worked on task content created by teachers. The major difference between L2 English and Chinese learners' engagement lies in self-reported anxiety and motivation and preferences during learner-generated content tasks and teacher-generated content tasks. Lambert and Zhang attributed this difference to previous experience of formal L2 instruction these two groups of learners received. In a similar vein, Nakamura et al. (2021) investigated 24 Thai university students' task engagement during two versions of the same opinion-gap task with task design that afforded them choices and no choices, respectively (i.e., + and – constraints conditions), and found that the students reported both higher enjoyment and anxiety when they engaged in the (− constraint) speaking task that required them to discuss and reach an agreement on school buildings to be constructed from options they generated than when

they discussed nine options generated by the teacher–researcher (+ constraint) and reached an agreement on them. In addition, students in the (− constraint) exhibited higher levels of cognitive (meaning and form negotiation, self-repairs), behavioral (number of turns), and social (number of overlaps) engagement.

Dao (2021) investigated the effects of task goal orientation (i.e., achieve consensus on specific issues versus diverge in opinions or thoughts to meet the task goal) on 32 Vietnamese EFL learners' cognitive, social, and emotional dimensions of task engagement and reported that the participants demonstrated greater cognitive and social engagement with the convergent decision-making task than with the divergent opinion-exchange task. On the other hand, the learners' emotional engagement did not differ across tasks. Link to this study Qiu and Cheng (2022) compared the effects of dialogic task type (opinion-exchange tasks versus storytelling tasks) on L2 English learners' task engagement and found that learners demonstrated greater cognitive (e.g., discussed language problems), social (e.g., occurrence of backchannels), and emotional engagement (e.g., conversation about their enjoyment) when they worked on storytelling tasks than when they worked on opinion-exchange tasks. Link to this study Qiu and Lo (2017) explored the effects of content familiarity and task repetition on 60 Chinese EFL learners' monologic task engagement. Performing four narrative tasks (two familiar and two unfamiliar topics) and repeating the same tasks to the first researcher/author, the learners' engagement in task performance was measured in behavioral, cognitive, and emotional engagement dimensions. Results showed that the learners demonstrated higher behavioral, cognitive, and emotional engagement when performing tasks with familiar topics. Nevertheless, in terms of task repetition, results showed that repeating the same task had a negative influence

on learners' behavioral and cognitive engagement, even though the learners felt more relaxed, confident, and motivated, especially for repeating tasks with unfamiliar topics. Link to this study Carver et al. (2021) compared the effects of 16 L2 Spanish learners' task engagement during two information-gap tasks in synchronous computer-mediated video communication and face-to-face communication modes and whether different task engagement dimensions are linked to L2 Spanish grammar learning. Results revealed that face-to-face interaction resulted in higher levels of cognitive and emotional engagement, as compared to synchronous computer-mediated video communication. Moreover, it was found that emotional engagement in face-to-face interaction contributed to L2 Spanish learners' learning of copula, a complex grammatical structure. Taken together with the studies reviewed above, the important role task-related factors play in learner engagement with tasks have been empirically attested in these studies.

Other studies using Philp and Duchesne's (2016) task engagement framework have also examined the effect of factors other than task-related factors or the combined effect of task, individual, or interlocutor-related factors, such as interlocutor familiarity and task mode (Dao et al., 2022), task type and L2 proficiency (Garcia-Ponce & Tavakoli, 2022), L2 proficiency (Dao & McDonough, 2018; Zabihi & Ghahramanzadeh, 2022), and group leadership (Leeming, 2021) on task engagement. For instance, Dao and McDonough (2018) studied the role of L2 English proficiency in 15 Vietnamese EFL learners' task engagement during picture sequencing speaking tasks, and found that the learners demonstrated higher cognitive, emotional, and social engagement when interacting with higher proficiency partners than interacting with lower proficiency partners. Link to this study Garcia-Ponce and Tavakoli (2022) investigated the influences of task type (personal information, narrative and decision-making tasks) and L2

English proficiency (elementary, intermediate, and advanced levels) in dialogic task engagement and task performance of 30 Mexican EFL learners. Approaching task engagement in three dimensions (cognitive, social and behavioral engagement), the researchers reported that the personal information task was the least engaging task in terms of social engagement yet this type of task elicited fluent and accurate learner language, and that learners demonstrated the lowest behavioral engagement when working on the narrative task yet this task type elicited the most syntactically complex learner language. The results also showed that English proficiency affected cognitive task engagement and accuracy and fluency of task performance, with advanced learners producing the most fluent, accurate language and showing highest level of cognitive engagement. The study suggests that task type affects learners' cognitive, social, and behavioral engagement and encourages specific aspects of task performance. In the context of synchronous computer-mediated written communication, Dao et al. (2022) investigated the impacts of task chat mode (video chat versus text chat) and familiarity with interlocutor on 98 Vietnamese EFL learners' cognitive, emotional, and social engagement and whether learner engagement leads to better written-text quality of the picture-sequencing tasks. The results demonstrated that learners' engagement was higher in video chat mode than in text chat mode, regardless of different dimensions of task engagement. In addition, Dao and his colleagues reported that learners working with familiar partners showed higher engagement than those working with unfamiliar partners during online task-based interaction, and that some aspects of cognitive (LREs, semantically engaged talk related to discussion on and contribution to the task) and social engagement (self-reported mutual help) contributed to the quality of the written text. These studies have identified factors affecting L2 learners' task engagement *a priori.* Despite the insights from findings of this line of research, it is important to recognize the potential situated

influences of a variety of individual and contextual factors which may interact to influence task engagement so as to inform practice (Hiver & Wu, 2023; Lyu & Lai, 2022; Mao & Lee, 2022).

Contrary to the bottom-up empirical investigations into relationships between one or two predetermined factor(s) and task engagement experiences, a small body of studies, though not anchoring in a specific theoretical framework, have identified multiple contextual and individual factors in L2 speakers' engagement with a particular task or set of tasks on different timescales (ranging from several minutes to several weeks) through a top-down approach (Aubrey, 2017 b, 2021, 2022; Aubrey et al., 2020). For example, Aubrey et al. (2020) reported a classroom study on factors that affected Japanese EFL university students' engagement and disengagement during 10 different speaking tasks over a 10-week period. Through post-task questionnaires, the researchers found that learner engagement with the speaking tasks was influenced by factors related to learner (e.g., perception about English skills and attitudes about learning English), lesson (e.g., understanding of and preparation for the lesson), and task (e.g., task design). In a similar vein, in both synchronous computer-mediated video-chat and text-chat modes, Aubrey (2022) identified several learner (e.g., perception of and attitudes towards English), task design (task familiarity, topic interest and familiarity), task process (e.g., task understanding, collaboration, focus on accuracy or fluency), and task condition (e.g., time constraint, communication mode) factors that L2 English learners in a university Hong Kong perceived to influence their engagement during collaborative writing tasks through learner self-ratings and stimulated recall interviews (an idiodynamic method). Taking a dynamic view towards task engagement, these studies have revealed that multiple individual and contextual factors contributed to task engagement.

It is worth noting that existing studies on task engagement have been confined to traditional monologic or dialogic oral tasks, such as decision-making tasks, opinion-exchange tasks, information-gap tasks, and storytelling tasks, in the classroom or lab setting. Little research has gone beyond these traditional communicative tasks (Hiver et al., 2021 b; Reinders & Nakamura, 2021). Given the growing recognition that out-of-class learning provides L2 speakers social opportunities that are difficult to obtain in the classroom, understanding what drives (dis)engagement with tasks beyond the classroom (e.g., innovative tasks like board games) can provide valuable information to policy makers, materials developers, and study abroad coordinators. Taking a broader perspective, the present study aims to dig into the factors that lead to L2 English speakers' engagement with board game interaction and compare multidimensions of L2 speakers' task engagement when they are playing two common types of board games. Such a study can yield useful practical implications that help promote international students' engagement with out-of-class board game interactions during study abroad. To further contextualize the present study, the subsection below will introduce and discuss different types of board games and the benefits of playing board games.

2.5 Board game types and the benefits of playing board games

Prior task engagement studies have looked at language learning tasks, such as picture-cued tasks, jigsaw tasks, and information tasks. Other than these traditional tasks, board games are a form of task that have been widely played outside the classroom, yet they have not received due research attention. Board games are games with a set of rules, a playing board, and other playing materials, such as cards, pieces, dice, and tokens that allow face-to-face interaction between or

among players on a table (Bayeck, 2020). Unlike digital games, non-digital games like board games, in most cases, are played without using electronic devices, such as consoles, computers, or tablets (Rogerson & Gibbs, 2018) and are often less expensive to develop than digital games (Kapp, 2018). The designs of board games and gameplay interaction are generally informed by the principles of TBLT, one of the contemporary and popular teaching methods in L2 pedagogy and SLA which features authentic real-life communication (Ellis & Shintani, 2014): (a) the primary focus of the task is on comprehending and producing meaning, (b) there is a gap which require L2 speakers to convey information or express opinion, (c) L2 speakers rely on their linguistic (e.g., L1 or L2) and nonlinguistic resources (e.g., facial expressions, gestures, body movement, eye gaze) for comprehension and/or production, (d) there is a clear communicative outcome other than using the language. Playing a board game requires L2 speakers to communicate with fellow players in face-to-face interaction. L2 speakers also have opportunities to ask for clarification of the rules of the games, negotiate the order of rolling a dice, and discuss how to solve puzzles together. The social game interaction is multimodal–L2 speakers may use verbal and nonverbal languages (e.g., laughter, smiles, eye gaze, gestures, and body movement) to signal turn taking, friendliness, agreement, disapproval, rapport, and emotional engagement. There is a clear outcome for board game interaction.

There is a wide array of board games in terms of nature, elements, and type. In terms of nature, serious (or educational) board games are specifically designed for education and for the learning of a particular subject (e.g., history, geography), language, and more often than not, both language and a particular subject, whereas commercial board games are not specifically designed for L2 learning or teaching but are created for recreational purposes (Bayeck, 2020). Commercial

board games are particularly suitable for informal learning due to their availability, attractiveness, price, and educational values (Hinebaugh, 2009).

With regard to game types, there are three types of board games: competitive, cooperative, and collaborative (Xu et al., 2011; Zagal et al., 2006). Competitive board games require players to use strategies to beat their enemy who are the fellow players of the board games. Players do not share the same goal. Rather, the main goal of the competition is recognition of superiority (Spanos, 2021). There is a sole winner at the end of the game. Contrary to competitive board games, players in collaborative board games work together as a team towards the same goal. Players in collaborative board games share the rewards or penalties of their resolution. If the team wins or loses, everyone in the team wins or loses. In other words, collaborative board games necessitate collaboration, whereas competitive board games foster competition and preclude collaboration among players (Zagal et al., 2006). As a case in point, players may play detectives and collaborate with the whole team to find out the culprit of a murder, as in *Clue*. Or players compete against one other in trading and winning properties to become the richest person, as in *Monopoly*. Cooperative board games fall between competitive and collaborative board games because players may behave competitively on occasions. The differences between collaborative board games and cooperative board games are that players of cooperative games may have different goals and payoffs, and there is a sole winner (Zagal et al., 2006). The present study compares a competitive board game with a collaborative board game because of their prevalence in the market.

Collaborative board games and competitive board games may induce different levels of satisfaction, emotions, and aspects of engagement from their participants. A small number of

studies on digital and non-digital educational board games in other fields have reported mixed findings. Arayapisit et al. (2023) found that students had higher self-reported satisfaction ratings after playing an educational collaborative board game for learning orofacial spaces than after playing an educational competitive board game, whereas Lin and Hou's (2022) study on an augmented reality educational game for leisure and recreation management majors to learn their subject matter showed that while the collaborative group experienced higher levels of flow, both competitive and collaborative groups improved their learning motivation. With regard to perceived psychological needs satisfaction and subsequent game task engagement, empirical evidence is still lacking. Successful collaborative learning is characterized by interactivity, synchronicity, and negotiability (Dillenbourg, 1999). Through collective actions, synchronous interaction and negotiation with other L2 English speakers, game players may achieve a common goal. In this sense, commercial collaborative board games may promote a sense of belonging (i.e., relatedness) and connections among players, which, from a basic psychological needs theory perspective, may lead to intrinsic motivation and certain aspects of engagement with the board game interaction. On the other hands, competitive board games may give L2 speakers autonomy to freely decide their own progress in the game, thereby fostering intrinsic motivation and certain aspects of engagement. Despite the potential of these two types of board games for fulfilling L2 speakers' psychological needs and promoting aspects of task engagement, this issue has been underexplored in L2 research since most research has focused on language learning tasks used in language classroom.

In addition to the potential fulfillment of certain aspects of psychological needs, board games have several characteristics that can promote task engagement, including meaningful repetition, social interaction and language use, game mechanics, deep emotional involvement,

authentic learning opportunities, and higher-level thinking process. First, board game interaction necessitates meaningful repetition, which has proven to be an engaging activity (Hanzawa & Suzuki, 2023). Turn taking among players leads to repetition (Bayeck, 2018; Dunkle, 2021; Smith, 2006). The repetitive nature of board gameplay interaction allows players to hear language and may incidentally pick up the language (e.g., vocabulary, pragmalinguistic forms) used between and among players (Dunkle, 2021; Smith, 2006). Repetition can be considered to be repeated practice. From cognitive and educational psychology perspectives, repeated practice facilitates automatization (i.e., extended and gradual learning process that contributes to automaticity) of language use and grammatical rules, leading to more efficient, faster use of knowledge (Suzuki, 2023). From TBLT perspective, task repetition gives learners practice opportunities that systematically enhance L2 speech production processes and promote transfer of gains in speech processing to other similar tasks (in this case, other board game interaction or conversational interaction that involves the use of playful language) (Lambert, 2023). Such meaningful repetition of the interaction makes L2 speakers engage in the board game play.

Second, board game interaction promotes interactive, meaningful language use that may promote task engagement (Dunkle, 2021; Poole et al., 2019). Unlike digital games in which interaction with players is not always necessary, board games give L2 speakers equal opportunities to participate in face-to-face real-life social interaction (Kapp, 2018; Poole et al., 2019). In other words, board games are more interactive and require constant oral language production from all the players to perform a variety of actions, such as agreeing on an idea proposed by team players, suggesting a solution to the problem, and expressing an opinion of the consequence of a player's decision making. This social aspect of board game interaction may

foster engagement by encouraging L2 speakers to negotiate, communicate, compete, or collaborate with one another.

Third, board games provide a relaxing, engaging form of entertainment through some game mechanics, such as challenges, competition, and rewards(Carter et al., 2014; Dunkle, 2021; Hinebaugh, 2009; Kapp et al., 2014; Kapp, 2018; Li et al., 2022; Wong & Yunus, 2021). For example, an accurate prediction of the winner (i.e., camel) in a camel race in *Camel Up* results in monetary rewards in the form of Egyptian pounds. Players may also enjoy the interaction because they compete with one another through taking turn betting on the winner- camel in the running race, using strategies to stop the progress of the camels, or rolling the dice to decide how many spaces a camel can move each time in a challenging, fun, and exciting way. Some board games require collaboration between players.

Fourth, board games may invoke emotions, such as joy, enjoyment, excitement, suspense, camaraderie, and nervousness that deepen L2 speakers' engagement. For example, when a group of players work together to achieve the common goal in collaborative board games, such as finding out the culprit of a murder and fighting diseases by finding resources for cures, they may create a network of comradeship with their team members and have an affiliation with them. Players may also enjoy competing against one another. For example, in the competitive board game, *Camel up*, players took turn using strategies to win the game. Sometimes their bet was not accurate due to a dramatic move of a camel, enjoyment and surprise arise as a result of their own or other players' strategies and choices.

Finally, playing board games is also an engaging activity because it may offer authentic practice (Kapp et al., 2014) and improve players' higher-level thinking (e.g., critical thinking,

strategic thinking), problem solving, and decision-making abilities (Bayeck, 2018; Carter et al., 2014; Hinebaugh, 2009; Kapp, 2018; Wong & Yunus, 2021). Many board games require players to think strategically to come up with the optimal strategy to solve the challenges. Players may also use a strategy against another player and adapt their strategies based on the actions of the other player. Since the scenarios somewhat resemble real life situations, board games may teach players skills that may transfer to real-life situations. Such authentic learning experience and deep-thinking process may engage L2 speakers. Following the above introduction of board games in terms of their types and benefits for players, the subsection below reviews existing studies on board games for L2task engagement.

2.6 Existing studies on the use of board games for engagement

In this subsection, I will first review studies on the use of board game for engagement in school contexts, followed by my review of studies that either show the link between basic psychological need satisfaction and engagement or focus on game design for psychological need satisfaction from other fields. Notwithstanding the benefits of playing board games, surprisingly little research has examined the effect of playing board games in and beyond the classroom and compared their effects on learner task engagement and learners' perception of psychological needs satisfaction (Taguchi & Roever, 2017) despite the fact that the use of non-digital board games is commonplace in L2 classroom and informal learning in general (Bayeck, 2020; Nurmukhamedov & Sadler, 2020; York et al., 2021; for exceptions, see Łodzikowski & Jekiel, 2019, Wu et al., 2014, Li et al., 2022). What has been even under-explored is commercial board games (Bayeck, 2020). A case in point is Wu et al. (2014), who compared the effects of playing a

commercial, competitive board game *Fresco* in both digital and non-digital formats for 50 minutes on Taiwanese EFL senior high school students' speaking performance. The results showed that the digital board gameplay group who learned English with a digital board game platform and digital learning playground outperformed the non-digital board game group and traditional teaching group in speaking performance, and there was no significant difference between non-digital board game group and traditional teaching group. In terms of intrinsic motivation (interest/enjoyment, effort/importance, pressure/tension, value/usefulness), there was a significant difference in pressure/tension, with digital board gameplay resulting in a more relaxed atmosphere, followed by traditional teaching. Interviews with the participants showed unfamiliarity with the rules of the non-digital board game and inauthentic context (i.e., interacting with the teacher while role-playing in the game plot was not the same as talking to the story character) resulted in perceived tension by students who played the non-digital board game. However, the study looked at learner motivation, which reflects learners' thoughts and is different from engagement, which denotes action. In addition, the study did not compare different game types (e.g., competitive versus collaborative), so it may be hard to arrive at a concrete recommendation regarding the type of board games which better promotes L2 engagement.

Situating in a classroom context, Łodzikowski and Jekiel (2019) designed three 30-minute serious (i.e., educational) competitive board games for teaching three key prosody topics to advanced university EFL learners in a two-semester English phonetics and phonology course in Poland. The study reported a small increase in post-class quiz scores for the three weeks in which board games were used. The study also demonstrated higher in-class engagement when the three board games were integrated into the instruction on different teaching days; however, students'

reported engagement was significantly higher than teaching days without board games only for the first board game pedagogical intervention. The researchers speculated that morning classes led to lower in-class engagement, whereas the occasional use of L1 for board gameplay contributed to high in-class engagement. Since the study only asked learners to rate the extent to which they engaged in the class with one questionnaire item, it might not have adequately captured the multidimensional nature of learner engagement with a task or activity. There is also little discussion on the factors contributing to student classroom engagement.

More recently, Li et al. (2022) developed a dual hierarchical, learner-centered scaffolding board game framework integrating two educational, collaborative board games into EFL reading class to facilitate Taiwanese vocational senior high school students' English story reading comprehension. After teacher guidance, students engaged in collaborative discussion (three to four students in each group) and reading by matching story characters and their corresponding feature and sequencing event cards and plot diagrams. Measuring EFL learners' motivation and anxiety through self-reported questionnaires and their reading comprehension through five matching questions for each story, the pre-and post-test results showed that the proposed pedagogical framework significantly enhanced Taiwanese EFL students' reading comprehension and motivation and decreased their anxiety, compared to a control group who received lecture-based treatment. The results also revealed that the board gameplay helped the students maintain motivation, which was measured three times (i.e., before, during, and after board game interaction) through three questionnaire items. Albeit informative, the study did not focus on commercial board games which are readily available for international students in a study abroad context. The strengths of using commercial board game for player-learner oriented research is

that it can be highly authentic and ecologically valid (Reinhardt, 2017). Similar to Łodzikowski and Jekiel (2019), the study did not specifically look at factors contributing to EFL students' motivation and anxiety.

Taken together, while the small body of research has indicated that board games have a number of affordances to facilitate different aspects of L2 learning, engagement, and motivation or decrease learner anxiety in instructed SLA context (Li et al., 2022; Łodzikowski & Jekiel, 2019) and tightly controlled classroom context (Wu et al., 2014) where English is a foreign language for both countries, the mixed results from the existing studies, a lack of comparison between different types of board games, especially commercial board games played outside the classroom, and a considerably small number of existing studies available point to a need for further research, especially in neglected areas, such as L2 speakers' engagement with commercial board game interactions from multiple dimensions, L2 speakers' perception of psychological needs satisfaction after playing different types of board games and attributions of engagement with board game interactions.

Two studies from other fields of education that looked at the link between BPN and engagement or BPN may be relevant to the present study. Peng et al. (2012) manipulated exergame (video game) design features in terms of autonomy (autonomy-supportive or not) and competence (competence-supportive or not) through an experimental study. The study found that manipulated autonomy-supportive and competence-supportive game features significantly contributed to players' motivation and engagement, and that need satisfaction of autonomy and need satisfaction of competence mediators for the relationships between the game features and the motivation and engagement outcomes. Despite the contribution of the study, it is important to

noted that the study did not compare the impact of game type on BPN and engagement. Motivated by a dearth of research that treats gamification (the use of game design elements in real-world contexts for non-gaming purposes) as a specific construct, Sailer et al. (2017) investigated the effect of gamification on BPN. The study revealed that psychological needs satisfaction was largely influenced by game design mechanism. Specifically, the results showed that badges, leaderboards, and performance graphs positively influenced participants' competence and autonomy need satisfaction, as well as perceived task meaningfulness, whereas avatars, meaningful stories, and teammates affect experiences of relatedness. The findings of these two studies are important because it suggests that game/gamification design features can influence players' BPN and/or engagement. What remains unknown is the context of intercultural interaction where international students face a few challenges, such as lack of opportunities to interact with other international students, cultural barriers, lack of access to social contact and interaction with others using the target language, and lack of engagement with learning opportunities available.

2.7 The current study

The literature reviewed in previous sections has indicated a small number of existing studies on L2 speakers' engagement with out-of-school, informal board game interaction. To the best of my knowledge, no studies thus far have attempted to explore the potential relationship between L2 speakers' psychological needs satisfaction and engagement with out-of-class interactional tasks because most prior research has primarily focused on formal learning taking place in the classroom context without considering L2 speakers who no longer enroll in language

classes at universities. In addition, as engagement with is a contextualized phenomenon, it is reasonable to study how L2 English speakers' engagement with board gameplay varies across game type and the factors influencing their engagement. With these in mind, the present study will compare the influences of collaborative and competitive board games on international students' needs satisfaction and engagement with board games. The secondary goal of this study is to explore needs satisfaction and factors which affect L2 speakers' engagement with board games from L2 speakers' perspective. By taking a process approach, this study seeks to shed light on the following issues: (1) differences in L2 English speakers' engagement with collaborative and competitive board games, (2) differences between collaborative and competitive board game interactions in supporting L2 speakers' basic psychological needs, (3) the potential link between satisfaction of the basic psychological needs of relatedness, autonomy and competence and aspects of task engagement, (4) L2 English speakers' perceptions of needs satisfaction, and (5) factors that influenced their engagement with the two types of board games. The following five research questions will guide the present study:

1. What is the difference between L2 English speakers' satisfaction of basic psychological needs of autonomy, competence, and relatedness after playing competitive and collaborative board games?
2. What is the difference between L2 English speakers' task engagement while playing competitive and collaborative board games?
3. What is the relationship between satisfaction of basic psychological needs and aspects of task engagement during competitive and collaborative board games?

4. What are L2 speakers' perception of satisfaction of psychological needs as a result of board game interactions?
5. What are factors affecting L2 speakers' engagement with competitive and collaborative board game interactions?

3. Research Methodology

This chapter presents research participant characteristics, methodological tools, procedure, and methods used to analyze data. There are six subsections of this chapter, including participants, research design, materials, instruments, procedures, and data coding and analysis

3.1 Participants

A total of 54 international university students (21 males and 33 females) who spoke English as a second language and enrolled in non-linguistics related undergraduate (26 students) and graduate (28 students) programs at an English-medium university in Canada participated in this study. They came from 19 countries, including Bangladesh (5), Bolivia (1), Brazil (3), China (12), France (3), Germany (1), India (5), Iran (4), Israel (1), Luxembourg (1), Morocco (1), Nepal (1), Peru (1), Saudi Arabia (2), Spain (2), Taiwan (5), Turkey (2), Tunisia (1), and Vietnam (3). They came from 12 disciplines, including computer science (6), anthropology (1), biology (2), business (13), communication (1), education (7), engineering (14), math and statistics (4), physics (1), political science (2), psychology (1), and urban planning (2). Their age ranged from 18 to 35 (M = 24.46; SD= 4.37). Their English proficiency, assessed by TOEFL, IELTS, or a Duolingo online test, was equivalent to Common European Framework of Reference for Languages (CEFR) B2 level. On average, they have been living in English-speaking countries for 2.78 years (SD=2.6). Forty-eight students (88.8%) had experience of playing board games. The participants played board games at school (25 students, 46.3%), home (33 students, 61.1%), a friend's house (40 students, 74.1%), and board game shop (13 students, 24.1%). Most of them reported playing board games 2 to 15 times (37 students, 68.5%), whereas 10 participants played board games

around or more than 100 times in their first language (18.5%). Thirty-six participants (66.7%) liked competitive and collaborative board games equally well. Eleven students indicated their preference for competitive board games (20.4%), whereas seven (13%) preferred collaborative board games. Although two participants reported their experience of playing *Mysterium*, they told the researcher that they played the board game in their childhood and had forgotten the rules of the game. Two groups of participants (N =7; five females and two males) participated in a focus group interview after they played two board games; their demographic profiles are presented below.

Table 3.1

Focus Group Participant Profiles

Pseudonyms	Major	Degree	L1	English proficiency	Years of living in English-speaking countries	Preference for board game type (competitive/ collaborative)
Marvis	Educational technology	M.A.	Turkish	IELTS, 7	2	No
Catherine	Aerospace Engineering	M.A.	Spanish	Duolingo,120	2	No
Mary	Education studies	M.A.	Portuguese	Duolingo,140	1	No

Windy	Marketing	M.A.	Chinese	TOEFL, 101	5	No
Sam	Quality System Engineering	M.A.	Bengali	IELTS, 8	0.5	No
Zane	Computer games	B.A.	Chinese	IELTS, 6	6	No
Charlotte	Aerospace Engineering	B.A.	German	TOEFL, 93	0.5	No

Note. All the seven participants indicated no preference for board game types

3.2 Materials and Instruments

3.2.1 Board games

This study treated board game type (collaborative versus competitive board game) as a within-groups independent variable. Several collaborative and competitive board games were piloted with 10 similar international students for the duration and suitability for this study. The researcher ended up selecting one collaborative (*Mysterium*) and one competitive (*Camel up*) board game for this study based on similar duration to play each board game, potential familiarity with the theme and rules, and the complexity of the game rules. The researcher ruled out the board game whose rules were too complicated to comprehend after pilot testing, and selected the ones that are not commonly available and accessible to the participants (e.g., Monopoly). For the collaborative game, *Mysterium* features a ghost's (one player) guidance and a group of psychics' (the rest of the players) interpretation of the ghost's visions to discover what happened and how the ghost was killed. The psychics work together to find the

suspect, location, and object that were assigned to them by figuring out the cues given by the ghost in the form of the vision cards. It should be noted that in the original version of the game, the ghost is not supposed to say anything but uses nonverbal behaviors (e.g., gestures) to indicate thoughts and communicate with other psychics, but to encourage participation and engagement, the ghost in this study can talk to psychics when distributing vision cards to the psychics. *Mysterium* is a collaborative board game because all players win or lose together, with an ultimate goal of uncovering the culprit who killed the ghost.

For the competitive game, *Camel up* features a multi-legged camel race with players trying to bet on which colored camel will win each leg and which camel will eventually win the entire camel race and which will lose the race. Players take turn rolling a dice, which appears in the form of a pyramid, to decide how many spaces all the camels can move in each leg. Players are also penalized for making wrong guesses. The game ends as soon as any camel crosses the finish line. *Camel up* is a competitive board game with only one winner who wins the game by winning the most money.

3.2.2 Questionnaires

Two types of questionnaires were administered to all participants: a background questionnaire and post-game engagement questionnaires. The background questionnaire contained a total of 20 items that asked about participants' linguistic and educational background, their social networks, exposure to English (in four skills, including reading, writing, listening, and speaking), and exposure to and experience with playing board games (see Appendix A). It was used to understand participants' educational and linguistic background as well as experience with playing board games in terms of frequency, preference for board game type, and contexts of

board game interaction. The end-of-game engagement questionnaires included 19 discrete-point items and one open-ended item that probed participants' overall engagement with the board game, factors affecting their engagement, and perceived psychological needs satisfaction. For engagement, the post-game questionnaire elicited L2 English speakers' perception of negative and positive emotions (emotional engagement; items 1 to 7), collaboration and mutual help (social engagement; items 8 to 15), and negotiation and self-reflection and interpretation on task content (cognitive engagement; items 16 to 19) during board game interaction (see Appendix B). The engagement items, adapted from Dao et al. (2022), included four items of cognitive engagement, eight items of social engagement, and seven items of emotional engagement based on exploratory factor analysis results reported in Dao et al. (2022). Example items are as follows: for emotional engagement, "I felt that the board game was enjoyable to play"; for social engagement, "I collaborated with other players during the interaction"; and for cognitive engagement, "I provided lots of ideas to contribute to the game". Cronbach alpha for each section of the questionnaire was .92 and .91 for emotional engagement in the competitive and collaborative board game, respectively, .92 and .91 for social engagement in the competitive and collaborative board game, respectively, and .72 and .70 for cognitive engagement in both the competitive and collaborative board game, respectively. The reliability of the questionnaire was good. Two open-ended questions that investigated factors affecting international students' engagement with the board game were administered (see Appendix C).

For psychological needs satisfaction, the questionnaire that contained nine Likert scale items and three open-ended questions that explored L2 English speakers' perception of psychological needs satisfaction (i.e., autonomy, competence, and relatedness) (see Appendix D) after finishing each board game. The nine Likert scale items were constructed based on Mynard

and Shelton-Strong (2022) and by adapting items from Alamer (2022) and Oga-Baldwin et al. (2017), with minor revisions on the wording of the items to fit the purpose of the study. For example, new words ("during the board game") were added after "I felt that I could choose what I wanted to do" and "students" in the item "I felt good working with other students" was replaced with "players." to contextualize the questionnaire item. Each construct had three items (i.e., autonomy, competence, and relatedness), that could be ranked from 1 (*strongly disagree*) to 5 (*strongly agree*). An example item for each construct is: for autonomy, "I felt I chose what I wanted to do during the board game"; for competence, "I felt confident in interacting with other players in English"; and for relatedness, "I felt closer/connected to other players". The three open-ended questions were adapted from Watkins (2022) by tweaking the wording. An example question is "Do you feel connected with others, respected by others, and/or responsible for participating in and contributing to board game interaction? Can you provide an example?". Cronbach alpha for each section of the questionnaire was .67 and .68 for autonomy in the competitive and collaborative board game, respectively, .66 and .65 for competence in the competitive and collaborative board game, respectively, and .70 and .69 for relatedness in both the competitive and collaborative board game, respectively. The reliability of the questionnaire was acceptable.

3.2.3 Focus group interview questions

To explore L2 English speakers' perception of their psychological needs satisfaction and the contextual and individual factors that influenced their engagement and disengagement, two groups of participants (N = 7) participated in a focus group interview. The researcher and participants went through 11 interview questions which asked the participants to describe what

made them engage in board game interaction, difficulties they faced, their collaboration with other group members, how they figured out how to play the board games, whether they set any expectations or goals for the board game interactions, and whether they felt competent, felt connected with others, and had freedom to make choices during board game interactions (see Appendix E); each focus group interview was around 41.5 minutes on average.

3.3 Research design

The study adopted a within-groups experimental research design to compare the effect of board game type on psychological needs fulfillment and task engagement. The independent within-groups variable was game type, which had two levels, collaborative board game and competitive board game. There were two dependent variables, task engagement and basic psychological needs. Task engagement was operationalized as L2 English speakers' cognitive, social, and emotional engagement with board game task. BPN was operationalized as L2 English speakers' fulfillment of their basic psychological needs (i.e., relatedness, autonomy, and competence).

3.4 Procedure

The study received ethics approval (protocol number: 30019463) from Concordia University prior to pilot testing and data collection. A recruitment poster was posted to relevant school communities of international students and undergraduate and graduate students via Facebook. Potential participants were also recruited through the researcher's personal contact with other colleagues who helped circulate the participant recruitment post in their online social communities with international students from the same home countries. Participation in this study was on a voluntarily basis; each participant was compensated 65 CAD for their time. For the

students selected for a focus group interview, each participant received an additional 15 CAD. After signing a consent form for participation (see Appendix F) and completing the background questionnaire, participants were randomly assigned to groups of three or four to play two board games. For each session, the researcher met a group of four or three research participants for around 2.5 hours in a classroom. Twelve groups had four players, whereas two groups had three players. Half of the participants (N = 29, seven groups) played a competitive board game, followed by a collaborative board game, whereas the others (N = 25, seven groups) first played a collaborative board game, followed by a competitive board game (see Figure 3). Counterbalancing research design in this way helps minimize order effects, while the within-groups design minimizes the influences of individual differences (e.g., motivation, interaction mindset, willingness to communicate) on the research results. Due to the complexity and difficulties of each board game, the researcher explained and clarified the rules of board game in detail before the students began playing the board game. Between the two games, the participants took a 10-minute break. Participants' interactions were recorded using a portable audio recorder. Their interactions were also videotaped to better make sure the researcher was able to distinguish each participant's utterances in a group interaction when their utterances overlap in the audio recordings. The competitive board game took each group an average of 30.54 minutes to play, whereas the collaborative one took each group 32.05 minutes to play (see Table 3.2). The participants produced a lot more words while playing the collaborative board game (3118 words on average) than playing the competitive board game (2097 words). After each board game, participants filled out end-of-game perception questionnaires. Finally, two groups of participants (N =7) were invited for a focus group interview separately based on their willingness to participate in a follow-up interview as indicated in the signed consent form.

Table 3.2

Descriptive Statistics of Duration and Amount of Talk for Each Board Game

Game type	Competitive board game			Collaborative board game		
	M	*SD*	Range	*M*	*SD*	Range
Time length of game	30.54	7.88	22.42-48.32	32.05	4.58	25.21-38.52
Amount of talk during game	2097.29	1114.36	928-4470	3117.93	1011.22	1066-4482

Note. M = mean; SD = standard deviation; time length=minutes; amount of talk=number of words

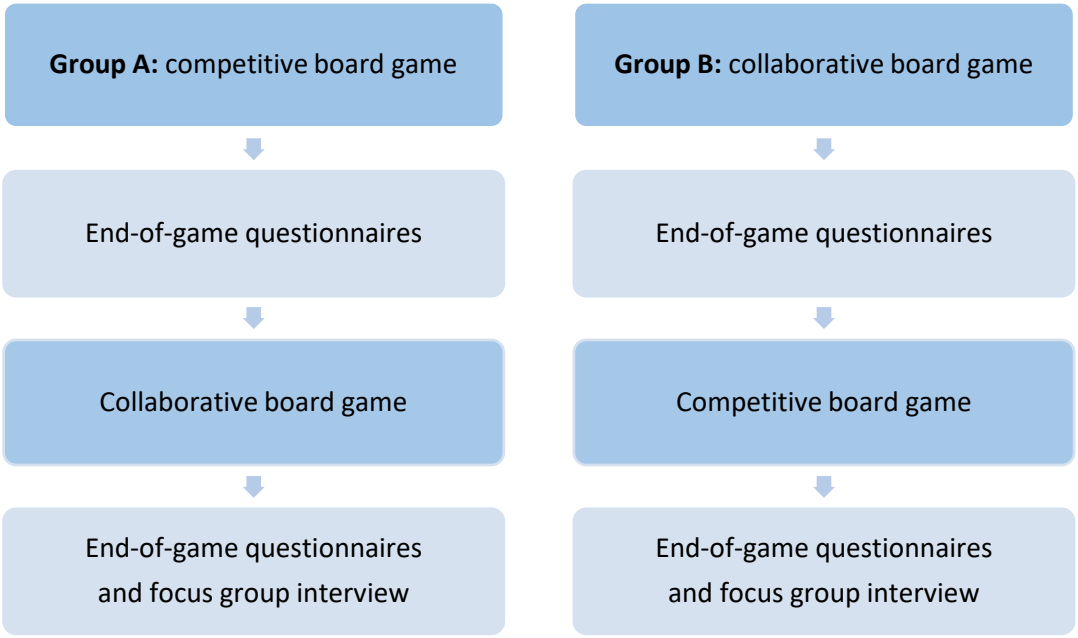

Figure 3

Research Activities of This Study

3.5 Data coding and analysis

Data consisted of audio/video-recorded board game interactions and post-game engagement questionnaire responses. In preparation for analysis, audio recordings of each group's game play interaction were transcribed verbatim by adopting Allwright and Bailey's (1991) transcription convention (see Appendix G).

Transcripts were coded for indicators of cognitive and social task engagement following coding categories used in previous studies (Aubrey & Philpott, 2023; Dao et al., 2022; Lambert & Aubrey, 2023; Philp & Duchesne, 2016; Soongpankhao et al., 2023). Instances of behavioral engagement are not coded because L2 speakers' behavioral engagement is a reflection of their cognitive, social, and emotional engagement (Dao et al., 2022; Dao & McDonough, 2018). In other words, when L2 speakers are cognitively, socially, and emotionally engaged with board game play, they are likely to manifest these dimensions of task engagement through interactional behaviors, such as attention to and discussion on task content and responding to their group members' ideas. Emotional engagement was operationalized as self-reported positive and negative emotions during the board games (Philp & Duchesne, 2016; Dao et al., 2022). As a result, emotional engagement was not coded.

3.5.1 Coding of transcribed interaction

3.5.1.1 Cognitive engagement

Cognitive engagement was operationalized as on-task talk, including asking questions, justifying an argument, an action, or a choice, elaborating and expanding ideas, generating additional ideas, deciding how to play the game, and deciding the progress of the game. It should be noted that

cognitive engagement in this study requires interlocutors either to respond to each other's ideas or thoughts or to engage in the task process on their own. In other words, in addition to coding cognitive engagement episodes in response to the utterances of other players, self-initiated episodes by individual speakers were also coded. This is because L2 speakers engaged with the board games not just through their interaction with others but also their own reasoning process. The following are examples of L2 speakers' cognitive engagement in competitive and collaborative board games.

One way to demonstrate one's cognitive engagement is through asking questions. In Excerpt 1, P8 asked the other players if black and white camels participated in the camel race during *Camel up*, the competitive board game.

Excerpt 1

Cognitive engagement: asking a question (Competitive board game)

P8: Do we have the black and white horse?

P5: Yeah

P6: Yeah.

Excerpt 2 presents two examples of asking questions during *Mysterium*, the collaborative board game, both of which were produced by P9. After P11 described a picture with ice and outdoor scene, P9 did a confirmation check (Ice?), which was considered to be an example of questioning. Following P11's response, P9 repeated P11's utterance (It is cold.) and asked a question about the image of another vision card she got (What is this? Bicycle?), which was the second question she asked in this episode.

Excerpt 2

Cognitive engagement: asking a question (Collaborative board game)

P11: It's outside and there's also ice

P9: Ice?

P11: Snow snowing ice. There are super cold.

P9: It is cold. What is this? Bicycle?

P11: Yeah there's a guy

Justifying an action is also one of the ways to demonstrate a player's cognitive engagement with board game interaction. Excerpt 3 shows an example of justifying one's action and choice that occurred after the other players' moves during *Camel up*, the competitive board game. After rolling the dice, P9 was surprised that the game ended. However, P12 and the researcher confirmed that the game still continued as no camel has crossed the finish line. Seeing this situation, P10 made a bet that the purple camel will be the winner of the camel race because its position is very close to the finish line.

Excerpt 3

Cognitive engagement: justifying an action (Competitive board game)

P9: One two three wow it's finished

P12: No

Researcher: No no no it moves

P9: The way like this

Researcher: White three yeah

P9: Thank you

P10: Ok I guess I ’ll bet on purple. It’s right at the end.

Justifying an action, a choice, or an argument also occurred when L2 English speakers played *Mysterium*, the collaborative board game. Excerpt 4 illustrates two examples of a player’s (P9) reasoning process. P9 found some similarities between a potential murder location card and a vision card (cue card given by the ghost), so she justified her argument (ok you know so I saw some animals here, here, here, here…. So it could be some animals here and here). P9 further justified her choice of the location where the ghost was killed (But between these two I'm gonna go with this one because of the fireplace…it's like a fire). Although *Mysterium* is a collaborative board game, each individual player often interpreted their own cards first and discussed or sought agreement with other players, which can be seen in the occurrence of P11’s backchannels (umm).

Excerpt 4

Cognitive engagement: justifying one’s action, choice, or argument (Collaborative board game)

P9: Ok you know so I saw some animals here, here, here, here.

P11: Umm

P9: So it could be some animals here and here. But between these two I'm gonna go with this one because of the fireplace

P11: Umm

P9: It’s like a fire.

Elaborating and expanding ideas is also a sign of cognitive task engagement. Excerpt 5 demonstrates two examples of expanding ideas produced by P9 and P10. P10 first argued that the image of the vision card he received was snakes and he also interpreted poison in the card. P9 moved from agreeing with P10 (oh yeah it looks like) to identifying poison in the vision card (by asking a question, which was confirmed by P10) and further expanding the idea (The cup the cup of poison). P10 later on identified chair (chair chair chair) in the picture. Following P11's backchannel (umm), he expanded the idea by saying "maybe he was poisoning the chair".

Excerpt 5

Cognitive engagement: elaborating and expanding ideas (Collaborative board game)

P10: because I see kind of like what's the snakes

P9: Umm

P10: Poison and poison here

P9: Oh yeah it looks like and this is poison?

P10: Could be

P11: Umm

P9: The cup the cup of poison

P11: Umm Umm

P10: Chair chair chair

P9: Umm Umm

P10: Maybe he was poisoning the chair

Cognitive engagement can also be manifested in L2 speakers' generation of additional ideas Excerpt 6 shows three ideas produced by P11 during collaborative board game: (1) This one looks like the desk the ribbon at the desk, (2) I have no trouble with this one, and (3) This one is like inside the house.

Excerpt 6

Cognitive engagement: generating additional ideas (Collaborative board game)

P11:This one looks like the desk the ribbon

P9: umm

P11: at the desk. I have no trouble with this one [point at another vision card]. This one is like inside the house

In addition to the above categories, participants often demonstrated their cognitive engagement by discussing how to play the game or monitoring the progress of the game. Excerpt 7 shows four examples of deciding how to play the game. P12 first said that two colorful camels moved forward, followed by P12's agreement that the two colorful camels' progress does not influence the white camel (the crazy camel) (Yeah cause it doesn't affect the white). After these After these two instances of discussing how to play the game, P12 spotted something strange about the progress of the game and explained why she thought that the other colorful camels should move counter clockwise (Okay, just if the dice white. But that's something wrong I think. I think these should go on to counter clockwise as well …because there is like a white on the top of them I mean). After this instance of discussing how to play the game, P11 disagreed with P12's view that the colorful camels should move counter clockwise.

Excerpt 7

Cognitive engagement: deciding how to play the game (Competitive board game)

P12: Ok these two go forward the game I mean

P11: Yeah cause it doesn't affect that white

P12: Okay, just if the dice white. But that's something wrong I think. I think these should go on to counter clockwise as well

P11: Umm

P12: because there is like a white on the top of them I mean

P11: But the the white is not under them.

Excerpt 8 presents an example of discussing how to play the competitive board game. P12 asked a question about the game rule that whoever decides to roll a dice can get an Egyptian pound (a coin). Such a question was not coded under the category of asking a question because it is related to making a decision on how to play the board game. Her question about how to play the board game was answered by P9 and P11.

Excerpt 8

Cognitive engagement: deciding how to play the game (Competitive board game)

P12: Should I get a coin?

P9: Yeah.

P11: Yeah but there is no coin.

Excerpt 9 illustrates an example of discussing how to play the collaborative game. The ghost (P12) distributed her vision cards to the red psychic, and both P11 and P9 replied that the red psychic has three vision cards (a ghost can give one to seven cards to each physic in each round). The ghost further explained that she intended to give the red psychic three cards.

Excerpt 9

Cognitive engagement: deciding how to play the game (Collaborative board game)

P12: Red

P11: Red is the %three cards.%

P9: Has %three cards%

P12: I know I just want to give extra.

P9: Uhuh

Excerpt 10 demonstrates an example of discussing the progress of the game. P12, the ghost, asked P11, one of the physics, to give all the vision cards back to her, and P11 agreed. Without asking P11 to return her vision cards, the board game could not move on to the next phase.

Excerpt 10

Cognitive engagement: deciding the progress of the game (Collaborative board game)

P12: Can I have all the back cards?

P11: Yeah

In addition to the above examples, it is worth noting that participants' interaction with the researcher (who acted as the game facilitator) was not coded and counted in the total words they produced because the researcher was interested in the interaction among players. On the other hand, their utterances during off-task interaction (i.e., small talk used to kill waiting time or build rapport during the board games) with other players were counted in the total number of words they produced, but their off-task engagement (e.g., responses to other players' jokes or chat) was not coded. Every instance of cognitive engagement was coded under one category. There was no double coding for each instance. The researcher summed the frequency counts of each category of cognitive engagement and normed per 100 words.

3.5.1.2 Social engagement

Social engagement was operationalized as L2 speakers' responsiveness in interaction based on reciprocity and mutuality (Dao et al., 2022). Measures of social engagement encompassed number of simple and affiliative backchannels (listeners' responses to show support, encouragement, empathy, and surprise) and instances of reflecting other players' contributions and utterances, responding to other players 'contribution, and repeating and completing each other's utterances (Dao et al., 2022; Soongpankhao et al., 2023). Examples of social engagement with competitive and collaborative board game interactions are presented below.

Participants frequently used simple backchannels to acknowledge their listenership and agreement of their peer players' utterances. In Excerpt 11, P7 reminded P8 of getting an Egyptian pound after she rolled a dice while playing the competitive board game. P8 acknowledged her comprehension of P7's reminder by using one backchannel (three simple backchannels, Yeah right okay, were counted as one backchannel in a single utterance).

Excerpt 11

Social engagement: using simple backchannels to signal agreement and confirmation

(Competitive board game)

P8: Okay. Okay. So the red one goes two and one of

P7: Don’t forget to pick your coin card.

P8: Yeah. Right. Okay.

Similarly, simple backchannels, used to acknowledge the listenership and agreement of their peer players’ utterances, frequently occurred during the collaborative board game. Excerpt 12 illustrates an example of a simple backchannel, showing the ghost’s (P52) confirmation that the black psychic received more vision cards again from the ghost ('Yeah, okay').

Excerpt 12

Social engagement: using simple backchannels to signal agreement and confirmation

(Collaborative board game)

P52: Um this is for black one also. So the same one.

P54: The same.

P52: Yeah. Okay.

In addition to simple backchannels, players also produced affiliative backchannels to show their support and encouragement during competitive and collaborative board games. In Excerpt

13, P17 had trouble rolling the dice because when she shook the pyramid, two dices came out (only one should come out so that players know which camel will move forward or move counter clockwise). P18 instructed P17 to click on the button on the pyramid instead of shaking the pyramid (You pull them but not shake it). Finally, after another try, only one dice came out from the pyramid. P19 produced a simple backchannel (Yeah), followed by P18's affiliative backchannel (Yeah. That's good.), which shows her support and encouragement.

Excerpt 13

Social engagement: using affiliative backchannels to signal support or encouragement

(Competitive board game)

Researcher: Oh yeah put them back and roll it again.

P17: I will do it again.

P19: Oh Hahahaha

P18: You pull them but not shake it

P19: Hahahaha

P17: I'm not shaking it.

P19: Yeah

P18: Yeah. That's good.

There is evidence of affiliative backchannels used to show support or encouragement during collaborative board game as well. Excerpt 14 demonstrates one example of affiliative backchannel. After P3 interpreted a card she received, P4 used a simple backchannel (Umm) to

agree and confirm what P3 just said. Later on, P3 reciprocally produced an affiliative backchannel (Yeah. That's true.) as a way to show support and agreement with P4's reasoning.

Excerpt 14

Social engagement: using affiliative backchannels to signal support or encouragement (Collaborative board game)

P3: And there there's also like a guy and animals

P4: Umm

P3: Maybe it is

P4: Maybe fishing so

P3: Yeah. That's true.

Social engagement during board game interactions can be manifested in repeating other player's utterance. In Excerpt 15, P11 intended to use a betting card she had because she thought that was the only action she could take. P12 corrected her and told her that she could perform any of the four actions as she wishes during the competitive board game. P11 replied by repeating the key utterance of P12 in the previous turn (Any actions).

Excerpt 15

Social engagement: repeating other players' utterance (Competitive board game)

P11: So for me it was just the card.

P12: No, you can just choose any actions dices.

P11: Any actions. Ok. Ok.

Repeating other players' utterance also occurred during collaborative game play. Excerpt 16 illustrates how P3 repeated P4's utterance. P4 produced an idea unit based on one of the vision cards she received from the ghost. P3 repeated the word (food) produced by P4, showing her positive feedback on P4's utterance and her active listenership.

Excerpt 16

Social engagement: repeating other players' utterance (Collaborative board game)

P4: There is food.

P3: This one instrument. Oh ok the food yeah. This one have no idea. Does he have a book or something? Or a note something.

Completing other players' utterance is a sign of social engagement. In Excerpt 17, P9 was figuring out which camel will move to the next stage after she rolled a dice while playing *Camel up*, the competitive board game. P10 completed her utterance by telling her red and yellow camels will move together. And P10's utterance completion was acknowledged by P9.

Excerpt 17

Social engagement: completing other players' utterance (Competitive board game)

P9: I have

P10: Red and yellow

P9: Yeah red and yellow together ok.

During collaborative board game interaction, participants also completed one another's utterance. As can be seen in Excerpt 18, P11 hesitated to utter can-. P10 completed the sentence with a word she was searching (i.e., candy).

Excerpt 18

Social engagement: completing other players' utterance (Collaborative board game)

P11: yeah um can-

P10: candy oh

P11: yeah bakery cupcake

Social engagement can be realized through players' verbal reflection on their peers' utterance and contribution. Excerpt 19 demonstrates an example of reflecting on a peer's utterance during the competitive board game interaction. P8 was confused about the rule of the board game, but no one was sure about game mechanism. This confusion about the game rule led to P5's reflection on their peers' confusion ('We still need more instructions haha').

Excerpt 19

Social engagement: reflecting on their peers' utterance and contribution (Competitive board game)

P8: So what are these for?

P6: I don't know haha

P8: Ok

P5: We still need more instructions haha

Players' reflection on their peers' utterance and contribution as a type of social engagement can be found in the collaborative board game interaction as well. As can be seen in Excerpt 20, P9 made a guess about a potential murder ('She killed this man.'). After this idea unit, she expanded her thought that the female potential murderer used a fork to kill the man. P10 showed his social engagement of reflecting on his peer's contribution by making an analogy between the female murderer and the police officer.

Excerpt 20

Social engagement: reflecting on their peers' utterance and contribution (Collaborative board game)

P9: She killed this man.

P11: Umm

P9: Haha forks haha

P10: Yeah with her hand like a police officer.

Finally, social engagement is manifested in responding to other interlocutors' utterances. Different from reflecting on peer players' contribution and utterances, responding to other players' utterances is more direct and prevalent throughout the two types of board games. It is also different from the use of affiliative and non-affiliative backchannels because the former is characterized by content words or short sentences. In Excerpt 21, after the end of a leg of the camel race, P9 asked the rest of the players the coins they should get. P11 and P10's replies are counted as two instances of responding to their peer's utterance.

Excerpt 21

Social engagement: responding to their peer's utterance (Competitive board game)

P9: You should get?

P11: Three

P10: Five

Similar examples of responding to peer interlocutor's utterance as a way to show one's social engagement can be found in L2 speakers' language production during the collaborative board game. For example, in Excerpt 22, P9 asked a question, and P11 replied with an answer corresponding to P9's question.

Excerpt 22

Social engagement: responding to their peer's utterance (Collaborative board game)

P9: Whose candles

P11: Yeah he had a candle

In addition to the above examples, it is worth noting that participants' interaction with the researcher was not coded and counted in the total words they produced because the researcher was interested in the interaction among players. On the other hand, their utterances during off-task interaction with other players were counted in the total number of words they produced, but their off-task engagement was not coded. Every instance of social engagement was coded under

one category. There was no double coding for each instance. The researcher summed the frequency counts of each category of cognitive engagement and normed per 100 words.

To check the reliability of coding, four transcripts were coded by a research assistant who is an applied linguistics graduate student. Cohen's kappa, the inter-coder reliability for measures of cognitive engagement (asking questions, justifying an argument, an action, or a choice, elaborating and expanding ideas, generating additional ideas, deciding how to play the game, and deciding the progress of the game) and social engagement (simple and affiliative backchannels, reflecting other players' contributions and utterances, responding to other players 'contribution, and repeating and completing each other's utterances were 0.80 and 0.87 and , respectively, indicating that the level of agreement among coders were high. Disagreements were resolved through discussion. The researcher then coded the remaining transcripts and questionnaire responses.

3.5.2 Coding of questionnaire responses

Participants' responses to 19 discrete point (from 1 to 10) questionnaire items on engagement with the board game were summed for each subsection of task engagement and then averaged the scores. Among the 19 items, three items on their negative emotions were reversely coded using JASP 0.18.3.0. The same coding method was used for participants' responses to 9 discrete point (from 1 to 5) questionnaire items on BPNs: The researcher counted the number and summed the total scores for each subsection of BPN and then averaged the scores.

Participants' responses (N=54 for each board game) to psychological needs satisfaction in the form of open-ended post-game questionnaire were analyzed by using content analysis. The coding process involved an initial review of participants' questionnaire responses, coding, and re-

coding the data. The initial review revealed that some participants' answers were incomprehensible or not relevant to the questions; therefore, four participants' data were eliminated from analysis. On the other hand, a participant's response to the open-ended question sometimes contained more than one idea representing two or three themes; in this case, all the ideas were coded. For example, a participant wrote, "I felt connected because the other players also did not have the experience of playing the board game. Players were respectful and helpful because they answered questions about the game during the game, passed coins we got, reset the dices, or even moved the camels forward for one another." The first idea ('I felt connected because the other players also did not have the experience of playing the board game.') was coded under the main category of individual speaker and the theme is experience of playing board game. The second idea ('Players were respectful and helpful because they answered questions about the game during the game, passed coins we got, reset the dices, or even moved the camels forward for one another') was coded under the category of social element, which can be further categorized into the theme of peer support. After the data were coded, similar codes were sorted into more general themes. The data were independently coded by the researcher and another applied linguistics graduate student. Cohen's kappa based on coding of 11 questionnaire responses from each board game (around 20% of the data) was 0.88, suggesting that intercoder agreement was strong. Disagreements were resolved through discussion. The researcher then coded the remaining questionnaire responses.

The coding scheme was shown in Table 3.3. Under each of the psychological needs (i.e., relatedness, autonomy, and competence), there are three subcategories that influenced the participants' perception of BPN, including social (peer collaboration or support, peer influence), game (game type, game design, topic familiarity, game familiarity), and individual speaker-

related (attitudes towards board games, experience of playing board games, personal achievement, personal strategy) elements.

Table 3.3

Coding Scheme for Perception of BPN

Elements of Basic Psychological needs	Examples: Competitive board game	Examples: Collaborative board game
Relatedness		
Social elements		
Peer collaboration or support	Players were respectful and helpful because they answered questions about the game during the game, passed coins we got, reset the dices, or even moved the camels forward for one another.	We made decisions together. The other players discussed ideas to figure out my original plan. I was mostly listening and adjusting my strategy during the game (as a ghost), so I can provide more related vision cards to them.
Game elements		
Game design	The board game was simple and cozy which made interaction with others easy.	As a ghost, my role was to decide which cards for murder, murder weapon and the location

			or to judge which detective is right.
	Game type	I was not connected with others because we were competing against one another. We focused on our own strategies to make the next move.	N/A
	Topic familiarity	N/A	The ghost chose the card with scenes players could resonate with (Disney cartoon scene).
Individual speaker Elements			
	Attitudes towards the board game	I tried to understand how the other players think, play, and bet.	I contributed to the game by discussing about the game and giving insights into the game.
	Experience of playing board games	The other players also did not have the experience of playing the board game.	N/A
Autonomy			
Social elements			

	Peer collaboration or support	N/A	Group members helped me but they also listened to me and give me opportunity to choose.
	Peer Influence	I could make choices about my next move even though there were some comments from other players.	I had choices but they were heavily influenced by the group.
Game element			
	Game design	We had opportunities to make choices on the four strategies we want to take during the game.	I had choices based on my imagination, and I interpreted ghost's visions based on my experience and thoughts.
Individual speaker Element			
	Attitudes towards the board game	N/A	When there lacked clues for deciphering the murder, location, or weapon, I asked the ghost for more clues (more vision cards)
Competence			
Social elements			

Peer collaboration or support	Playing and collaborating with others brought me a sense of accomplishment.	We eventually figured out the right answers by working together.
Peer Influence	No. I did not feel accomplished because some players lack will to play the game even though I made an effort to make the game easy and enjoyable.	Since other players highly depend on me to be succeeded in the game, their accomplishment made me feel competent. (as a ghost).
Game elements		
Game design	The way that I have to think and guess the winner camel gave me a sense of accomplishment.	I felt accomplished because of the game design (e.g., different stages and giving players more time to think and enhancing motivation gradually).
Game familiarity	I felt accomplished because of familiarity with the game rules after playing the game.	N/A
Individual speaker elements		

Attitudes towards the board game	I was trying to win and did my best job to use strategies to influence the results of the game.	I tried my best to guess.
Personal achievement	I was able to communicate with people I don't know.	I felt accomplished when my guesses were correct.
Personal strategy	We did not make use of other function cards to make the game much more fun.	N/A

Note. N/A means not available

Participants' responses (N=54 for each board game) to factors affecting their engagement with board games in the form of open-ended post-game questionnaire were also analyzed by using content analysis. The researcher read questionnaire responses multiple times to identify factors affecting task engagement and categorized them into causes of engagement and disengagement before coding the data. The initial review revealed that some participants' answers were incomprehensible, ambiguous, or not relevant to the questions; therefore, their responses were eliminated from analysis. On the other hand, a participant's response to the open-ended question sometimes contained more than one factor influencing their engagement with the board game; in this case, all the factors were coded. After the data were coded, similar codes were sorted into more general themes. The data (11 questionnaire responses from each board game) were independently coded by the researcher and another applied linguistics graduate

student. Cohen's kappa was 0.87, indicating that level of agreement among coders were high. Disagreements regarding the coding were resolved through further discussion until agreement was reached. Following this step, the researcher then coded the remaining questionnaire responses. The coding scheme was shown in Table 3.4. As can be seen from Table 3.4, there are four overarching categories of factors that influenced the participants' engagement with the board games, including social (peer collaboration or support, peer interaction, peer identity, peer influence), game (game design, game type), school or academic (school responsibilities), and individual speaker-related (preference for new/a certain type of board game, attitudes towards board games, personality, enjoyment) elements.

Table 3.4

Coding Scheme for Factors Influencing Engagement with Board Games

Factors influencing task engagement and disengagement	Example: Competitive board game	Example: Collaborative board game
Social factors		
Peer collaboration, support (Collegiality)	We worked collaboratively and figured out unclear issues.	I think brainstorming together and listening to other players' ideas made me engage.
Peer interaction	I enjoyed playing with the other players.	Peer players influenced my engagement. We

		spent a lot of time sharing thoughts based on evidence.
Peer identity (e.g., international students/strangers)	Since we are all international students (no one is native speaker of English), I felt comfortable interacting in English.	Peer players were friendly. While we were playing, I did not feel like meeting with strangers.
Peer influence (e.g., see others' motivation to play, fluent English proficiency)	The way the others were also engaged and to see them motivated to play made me engage in playing the game.	Seeing my partner spend too much time interpreting a vision card made me disengage.
		The other players worked hard to figure out the clues I gave them, which made me even more engage in finding out helpful clues for them.

Game factors

Game design (e.g., topic, game role, strategic thinking, creative thinking)	The game was intense and enjoyable (full of surprise and gain money as rewards). The rules were simple so I caught them easily.	This game was really interesting; I felt engaged because there was a mystery to solve and I wanted to know if I made correct guesses.
	The dice box sometimes did not work	Being the ghost made me engage in the board game.
		Vision cards were too abstract.
Game type	The game is clearly a competitive game; it creates a sense of excitement and interaction.	I felt engaged since it was a collective game that required us to collaborative and communicate with others.

School/academic factor

School responsibilities	I felt there are many school things going on in my mind, which kind of distracted me.	I felt that my school responsibilities played an important role in how I engaged with the game because there were a lot of stuff in my mind.
Individual speaker factors		
Preference for new/a certain type of board games	I really like playing board games.	I enjoy playing collaborative board games.
Personality (e.g., being a social, creative competitive, or extroverted person, and like meeting new people)	I am very competitive when playing games. I also like to win when other players are playing the game seriously.	I think my personality (i.e., always try to win) influenced my engagement and helped me make correct guesses.
Enjoyment	I felt engaged as I enjoyed the competitive game.	N/A
Attitudes towards playing the board game	I tried to develop a strategy to win.	N/A

Note. N/A means not available

3.5.3 Coding of focus group interviews

Transcripts of focus group interviews with two groups of players (N = 7) were coded by drawing on content analysis. Taking a bottom-up approach, the researcher read the interview transcripts multiple times to identify emergent themes related to fulfillment of BPN and categorized them into the categories of relatedness, autonomy, and competence. Inter-coder reliability, as measured by Cohen's kappa, was 0.86, indicating a strong agreement among coders. Disagreements were resolved through discussion.

For coding of factors affecting task engagement, it also involved an initial review of the data through a button-up approach, coding, re-reading the transcripts, coding the data again, and categorizing the data into themes related to causes of engagement and disengagement before coding the data. The same categories used to code BPNs and factors contributing to task engagement from the questionnaires were used for coding the focus group transcripts. Inter-coder reliability was 0.89, showing a strong agreement among coders. Disagreements were resolved through discussion.

3.6 Data analysis

To answer Research Question 1, the researcher computed participants' responses to the nine five-point Likert-scale questionnaire items about the fulfillment of BPN in terms of autonomy, relatedness, and competence for each board game to two Excel sheets. The average score for each of the three categories of BPN for each board game (autonomy, relatedness, and

competence) was calculated. The scores were entered into JASP 0.18.3.0 for analysis. Assumption of normality was violated (Shapiro-Wilk test). Given that the data were not normally distributed (*p* values were less than .05 for both autonomy and competence scores), Wilcoxon signed-rank test was conducted to determine significant differences between the two types of board games on participants' perceived psychological needs satisfaction, with an adjusted alpha level of 0.017 (0.05/3) used as the threshold for significance.

To answer Research Question 2, the researcher also computed participants' responses to the 19 10-point Likert-scale questionnaire items about cognitive, social, and emotional aspects of engagement with the two board games to two Excel sheets. The average score for each of the three categories of task engagement for each board game was calculated. The three indicators of task engagement were entered into JASP for analysis. Due to the violation of the assumption of normality (Shapiro-Wilk test), Wilcoxon signed-rank tests were performed to determine significant differences between the two types of board games on participants' the three aspects of task engagement (two coded measures and three self-reported measures). An adjusted alpha level of 0.017 (0.05/3) was used as the threshold for significance for the self-reported measures and 0.025 (0.05/2) for the coded measures.

To uncover the relationship between perceived psychological needs satisfaction and aspects of engagement with board game interactions (Research Question 3), correlation analyses were conducted. Because the assumption of normality was violated ($p<.001$), Spearman's rho correlation analyses were performed. All the effect sizes were interpreted based on Plonsky and Oswald's (2014) benchmark: small effect: $r = 0.25$; medium effect: $r = 0.40$; and large effect: $r = 0.60$.

To answer Research Question 4, all the participants' open-ended questionnaire responses

were examined using content analysis. The coded data (themes) were calculated in terms of frequency and percentage (proportion). The open-ended questionnaire responses were triangulated with two focus groups of interview transcripts and discrete-point questionnaire data to better support the study and its conclusions (Mackey & Gass, 2016).

For Research Question 5, the researcher also conducted a content analysis to examine all the participants' open-ended questionnaire responses. The data were presented in frequency and percentage counts of the emergent themes in Chapter four, which were triangulated with focus groups interview data and discrete-point questionnaire data.

4. Results

In this chapter, the results based on research participants' open-ended and closed-ended end-of-game questionnaire responses and focus group interviews are presented in the order of the four research questions: (1) difference(s) in perceived psychological need satisfaction after L2 speakers play competitive and collaborative board games; (2) difference(s) in task engagement by game type; (3) the relationship between psychological need satisfaction and aspects of task engagement with two board games; (4) perception of elements of competitive and collaborative board game interaction that support psychological need satisfaction; and (5) factors influencing L2 speakers' engagement with collaborative and competitive board game interactions.

4.1 Difference(s) in perceived BPN by game type

The first research question compares the differences between L2 English speakers' satisfaction of basic psychological needs of autonomy, competence, and relatedness after playing competitive and collaborative board games. Table 4.1 shows the descriptive statistics and non-parametric Wilcoxon signed-rank tests results. As shown in the table, L2 English speakers reported higher level of autonomy (M=4.55, SD=0.48) in the competitive board game than in the collaborative board game (M=4.09, SD=0.83). A Wilcoxon signed-rank test further demonstrated that there was a significant difference (p<.001) for autonomy between the competitive board game and the collaborative board game, and such effect was large (r=0.7). On the other hand, higher level of relatedness was found after the participants played the collaborative board game (M=4.49, SD=0.54) than after they played the competitive board game (M=4.09, SD=0.83). A Wilcoxon

signed-rank test further demonstrated that there was a significant difference (p<.001) between the two types of the board games for relatedness, and the effect size was large (r=-0.85) as well. For competence, the mean scores of participants' ratings for both types of the board games were similar (M=4.54, SD=.057 for the competitive board game; M=4.41, SD=0.73 for the collaborative board game). A Wilcoxon signed-rank test revealed no significant difference in perceived competence after the two board games (p<0.029), and the effect size fell between medium and large (r=0.52).

Table 4.1

Statistical Results for Psychological Need Satisfaction by Game Type

Psychological need satisfaction	competitive board game		collaborative board game		W	z	*P*	Rank-biserial correlation
	M	*SD*	*M*	*SD*				
Autonomy	4.55	0.48	4.09	0.83	696	3.84	<.001*	0.70
Relatedness	3.74	0.87	4.49	0.54	86.5	-5.05	<.001*	-0.85
Competence	4.54	0.57	4.41	0.73	209.5	2.18	0.029	0.52

Note. M = mean; SD = standard deviation; p<.017* (two-tailed).

To sum up, participants playing the competitive board game experienced significantly higher level of autonomy than playing the collaborative board game, whereas participants playing the collaborative board game experienced significantly higher level of relatedness than playing the competitive board game.

4.2 Difference(s) in task engagement by game type

The second research question asks if there are any differences between L2 English speakers' cognitive, social, emotional aspects of engagement after playing competitive and collaborative board games. Table 4.2 represents the descriptive statistics and Wilcoxon signed-rank tests results after the participants played the competitive board game and the collaborative board game. For cognitive engagement, there was significantly more on-task talk (p=0.021) in the collaborative board game (M=8.65, SD=5.70) than in the competitive board game (M=4.91, SD=3.05). The result of a Wilcoxon signed-rank test further revealed that effect of the difference between the two board game types was medium-to-large (r=-0.52). Corresponding to the coded measure, the analysis of participants' questionnaire responses showed that their attention to task content was higher while playing the collaborative board game (M=6.68, SD=2.20) than while playing the competitive board game (M=5.13, SD=2.09). A Wilcoxon signed-rank test further revealed that such differences between the two types of board games were significant (p<.001), and such effect was large (r= -0.65). With respect to social engagement, more responsiveness instances were found in the competitive board game (M=9.01, SD=4.8) than in the collaborative board game (M=8.14, SD=2.15). A Wilcoxon signed-rank test further revealed that such differences in the coded social engagement measure of both competitive and collaborative board game was significant (p=0.018), with a medium to large effect size (r=0.56). This does not correspond to their perception about mutual collaboration and help where collaborative board game received higher ratings (M=8.56, SD=1.76) than competitive board game (M=6.49, SD=2.35). A Wilcoxon signed-rank test further revealed that such differences were significant (p<.001), with a large effect size (r= -0.74). With respect to emotional engagement, participants

experienced more positive emotions while playing the competitive board game (*M*=8.12, *SD*=1.31) than while playing the collaborative board game (*M*=7.67, *SD*=1.61), yet such a difference was non-significant and the effect size was small (*r*=0.28).

Table 4.2

Statistical Results for Task Engagement by Game Type

Measure of engagement	competitive board game		collaborative board game		*W*	*Z*	*P*	Rank-biserial correlation
	M	*SD*	*M*	*SD*				
Cognitive engagement								
On-task talk (coded)	4.91	3.05	8.65	5.70	188	4.34	0.021*	-0.52
Asking a Question	0.36	2.89	1.03	4.34	-	-	-	-
Justifying one's choice or action	0.04	2.70	1.14	6.43	-	-	-	-
Elaborating and expanding ideas	0	0	2.23	4.95	-	-	-	-
Generating additional ideas	0	0	3.16	5.87	-	-	-	-
	4.40	3.51	1.06	4.74	-	-	-	-

Deciding how to play	0.01	0.20	0.03	0.1	-	-	-	-
Deciding the progress of the game								
Perceived attention to task content	5.13	2.09	6.68	2.20	221.5	4.02	< .001*	-0.65
Social engagement								
Responsiveness instances (coded)	14.01	4.80	8.14	2.15	157	5.06	0.018*	0.56
Using simple backchannels	7.69	5.89	1.76	-	-	-	-	-
Using affiliative backchannels	1.62	1.27	0.32	-	-	-	-	-
Repeating peers' utterance	2.05	6.32	2.32	-	-	-	-	-
Completing peers' utterance	0.01	0.1	0.01	-	-	-	-	-
Reflecting on peers' utterance	0.33	0.24	1.68	-	-	-	-	-

Responding to peers' utterance	2.31	2.5	2.05	-	-	-	-	-
Perceived collaboration and mutual help	6.49	2.35	8.56	1.76	164	4.57	< .001*	-0.74
Emotional engagement								
Perceived positive and negative emotions	8.12	1.31	7.67	1.61	885	1.79	0.08	0.28

Note. M = mean; SD = standard deviation; on-task talk or its subcategories=on-task talk or each of its subcategories/100 words; responsiveness or its subcategories =responsiveness or each of its subcategories /100 words. $p<.017$* for the rated measures; $p<0.025$* for the coded measures

In sum, L2 English speakers had significantly higher level of cognitive engagement while playing the collaborative board game than the competitive board game, which was manifested in both their actual language use and questionnaire responses. However, although they reported significantly higher level of social engagement while playing the collaborative board game than playing the competitive board game, they produced significantly fewer responsiveness instances while playing the collaborative board game than playing the competitive board game, though the statistical result was not significant.

4.3 The relationship between BPN and task engagement by game type

The third research question asks the relationships between perceived psychological need satisfaction and aspects of engagement with competitive and collaborative board games. Spearman's rho correlation analyses that compared the relationships between basic psychological need satisfaction and aspects of engagement with competitive and collaborative board games were presented in Table 4.3. With respect to cognitive engagement, there were no significant relationships between task engagement and perceived psychological need satisfaction, regardless of board game type. In terms of *Camel up*, the competitive board game, it was found that there was a significant, positive relationship between perceived mutual help and collaboration and relatedness (r=0.56, p<.001), with medium-close-to-large effect size. Responsiveness instances, the coded measure of social engagement, also had a significant, positive relationship with relatedness (r=0.32, p=0.03), and such effect fall between small and medium. In addition, autonomy had a significant, positive relationship with perceived emotions, though such effect was small (r =0.31, p =0.02). Turning to *Mysterium*, the collaborative board game, a significant, positive relationship between perceived mutual help and collaboration and relatedness was found (r = 0.41, p =0.01). Responsiveness instances had a significant, positive relationship with relatedness (r=0.38, p=0.02), with a close to medium effect size. There was a significant, positive relationship between perceived emotions and relatedness, and the effect was small (r = 0.34, p =0.01). In addition, perceived emotions had a significant, positive relationship with autonomy, such effect was small (r = 0.29, p =0.03).

Table 4.3

Correlations Between BPN and Task Engagement

Measures of engagement	Competitive board game						Collaborative board game					
	Autonomy		Competence		Relatedness		Autonomy		Competence		Relatedness	
	R	*P*	*R*	*P*	*R*	*P*	*R*	*P*	*R*	*P*	*R*	*P*
Cognitive engagement												
On-task talk (coded)	-0.12	0.43	0.29	0.85	0.09	0.74	0.11	0.56	0.16	0.47	0.05	0.22
perceived attention to task content	-0.14	0.31	0.25	0.08	0.04	0.80	0.03	0.84	-0.13	0.34	0.07	0.63
Social engagement												
Responsiveness instances (coded)	0.21	0.39	0.09	0.70	0.32*	0.03	0.27	0.33	0.35*	0.01	0.38*	0.02
perceived collaboration and mutual help	0.17	0.23	0.07	0.60	0.56***	.001	0.23	0.10	-0.05	0.74	0.41*	0.01
Emotional engagement												

Perceived emotions	0.31*	0.02	-0.03	0.81	0.14	0.30	0.29*	0.03	0.05	0.72	0.34*	0.01

Note. *p < .05, **p < .01, *** p < .001 (two-tailed).

To sum up the results for the research question about the link between BPN and aspects of engagement with the board game, it was found that L2 English speakers who felt satisfied with their psychological needs of autonomy were emotionally engaged with the two types board games, whereas those who felt satisfied with their psychological needs of relatedness were socially engaged with both types of board games. Additionally, playing the collaborative board game enhanced their feeling of relatedness, which additionally made them emotionally engaged in English interaction with international students from diverse linguistic and cultural backgrounds. Moreover, their feelings of competence were associated with responding to peer players' utterances and contribution (coded measure of social engagement).

4.4 Perception of board games that support BPN

Research question four explored L2 English speakers' perceptions about competitive and collaborative board games that support their basic psychological needs of autonomy, competence, and relatedness. The perceived elements of competitive (*Camel up*) and collaborative (*Mysterium*) board game interactions that support their psychological needs are presented in Table 4.4.

With respect to L2 English speakers' perceptions of the two board games supporting their psychological needs of relatedness, peer support and/or collaboration best fostered a sense of relatedness among peer players in both the competitive board game (29.53%, 44 mentions) and the collaborative board game (18.18%, 30 mentions). It is worth noting that game type had a

negative impact on perceived relatedness (25%, 6 mentions) only for the competitive board game. In terms of fulfillment of the psychological need of autonomy, both the design of competitive board game and collaborative board game enabled L2 speakers to make choices about how to play the game (30.2%, 45 mentions for the former; 25.45%, 42 mentions for the latter). However, there were also 43.48% (10 mentions) of the negative comments on collaborative board game design, which thwarted autonomy of the participants. The negative comments on game design were fewer for the competitive board game (16.67%, 4 mentions). The results indicate that game design is a double-edged sword that can facilitate and thwart L2 English speakers' autonomy, regardless of the board game type. Participants playing the competitive board game also reported their lack of autonomy due to peer influence, which accounts for 20.83% (5 mentions) of their negative comments on autonomy. Peer (negative) influence had a smaller impact on perceived autonomy (13.04 %, 3 mentions) after the participants played the collaborative board game than after they played the competitive board game. With regard to satisfaction of basic psychological need of competence, game design was also the most important element contributing to L2 English speakers' negative feelings of competence for both types of the board games (25%, 6 mentions for competitive board game; 26.09%, 6 mentions for collaborative board game). Nevertheless, the two games differed in terms of the second important element for fulfilling the psychological need of competence: while personal achievement (12.75%, 19 mentions) made L2 speakers feel a sense of mastery after they played the competitive board game, peer collaboration and support (14.55 %, 24 mentions) made them feel competent and accomplished after they played the collaborative board game. Overall, the participants generally held far more positive perceptions of the two types of board games for fulfilling their basic psychological needs of relatedness, autonomy, and competence (a total of 149 positive comment on competitive board

game and 165 positive comments on collaborative board game), as compared with the number of negative comments they made.

Table 4.4

Perceptions Towards Different Board Games that Support BPN

Perceptions of Basic Psychological Needs	Competitive board game		Collaborative board game	
	Positive	Negative	Positive	Negative
Relatedness				
Social element				
Peer collaboration or support	**29.53% (44)**	0	**18.18% (30)**	0
Game elements				
Game design	1.34% (2)	0	4.24% (7)	13.04% (3)
Game type	0	**25% (6)**	0	0
Topic familiarity	0	0	0.61% (1)	0
Individual speaker elements				
Attitudes towards the board game	0.67% (1)	0	7.88% (13)	0
Experience of playing board games	1.34% (2)	0	0	0
Autonomy				

Social elements				
Peer collaboration or Support	0	0	9.7 % (16)	0
Peer influence	0	**20.83%(5)**	0	13.04% (3)
Game element				
Game design	**30.2% (45)**	16.67%(4)	**25.45% (42)**	**43.48%(10)**
Individual speaker element				
Attitudes towards the board game	0	0	1.21% (2)	0
Competence				
Social elements				
Peer collaboration or Support	2.68%(4)	0	**14.55% (24)**	0
Peer influence	0.67% (1)	8.33% (2)	4.24% (7)	4.35% (1)
Game elements				
Game design	4.7% (7)	**25% (6)**	6.67% (11)	**26.09% (6)**
Game familiarity	5.37% (8)	0	0	0
Individual speaker elements				
Attitudes towards the board game	10.74%(16)	0	3.03% (5)	0
Personal achievement	**12.75%(19)**	4.2% (1)	4.24% (7)	0
Total	100% **(149)**	100% (24)	100% **(165)**	**100% (23)**

Note. The number in the bracket represents frequency count. The bold ones are highlighted results (frequency counts were higher than others).

To triangulate different data type and sources, focus group interviews with two groups of participants provided further evidence of their perceived basic psychological need satisfaction after playing the two types of board games. With respect to the satisfaction of relatedness, peer support and collaboration and game type were mentioned by the interviewees as the elements that made them feel related to one another. In the excerpt below, Charlotte expressed her opinion that she thought her group collaborated very well even though they did not know one another, and the rest of the three players concurred with her view.

> "I felt perfect that I feel like we were a nice group and we got along well directly even though we didn't know each other and we all respected each other's opinions and interest." (Charlotte, G2)
>
> Researcher: For both games or just one of them?
>
> Charlotte and other players: both

Contrary to Charlotte's group, Catherine, Marvis, and Mary's group held different opinions. All the three players thought *Mysterium* made them feel connected and related to one another because they tried to help one another by listening to their peers' interpretation and respecting their peer players' opinions.

> "For the first one (*Camel up*), we're not really talking. So there was not much relatedness, but for the second one (*Mysterium*) there was a lot more. I Think I started

feeling more like connected when they started sharing our interpretations of the things. For example, She said, Oh, maybe in Portuguese is the same. I was like, oh, yeah, that's true. And I was thinking about the same thing. You know, like poison. She said, in Vienna, it was like the same thing in Portuguese. Yes, I get it. I get what you mean." (Catherine, G1)

"Yeah for the first one (*Camel up*) not that much because we didn't interact that much. But in the second game (*Mysterium*). Yes. I felt like they listened to my opinion. And like, vice versa. So I listened to them. And they listened to me. So we respect each other interpretation. Like we at least pay attention to it." (Mary, G1)

"I'm against the first one (*Camel up*) because we didn't have a chance to talk a lot. But for the second one (*Mysterium*), even if I'm a ghost, so I just tried to like, understand their interpretation. And then I think for me, this is also a kind of collaboration. Because I have a chance to like listen to them." (Marvis, G1)

In addition, peer players felt connected to one another because of the collaborative board game. The excerpt below showed that Catherine thought the collaborative nature of the board game made them relate to one another, especially the ghost.

"We also could see like how Marva was trying hard to give her the clues and we were just trying, like okay, what does she mean by that? Which also made it like, okay, let's, let's try to help her help us. A very collaborative game." (Catherine, G1)

While participants playing the competitive board game had negative perception of the influence of the board game type on their relatedness in their questionnaire responses, this finding does not corroborate interview data where participants almost focused on positive perception of peer collaboration and support as a crucial element of their satisfaction of the psychological need of relatedness.

The analysis of discrete-point questionnaire items responses revealed that participants reported significantly higher level of relatedness in the collaborative board game than in the competitive one may be further supported the interview data. In the excerpt below, Catherine viewed the goal of the competitive board game and collaborative board game differently. *Mysterium*, the collaborative board game, required players to collaborate and made them feel related because of the game type.

> "One is more. One is about winning a game. And the other one is more about collaborative. So winning together. They were all about winning, but *Mysterium* was winning together. But the first one (*Camel up*) is winning." (Catherine, G1)

With respect to the satisfaction of the psychological need of autonomy, participants reported that certain design in the collaborative board game gave some of them more autonomy than others.

> "For the first one (*Camel up*), yes, for the second one (*Mysterium*), it was difficult because like, it depends on my interpretation, also the cards are not, for example, for some of them there are some clues on cards. But for the one for example, for the doctor, there wasn't enough clues to explain it. I of course, I can choose the like dark pictures or

> I can choose like the other things. For example, I tried to choose like mushrooms or books like to make it okay, this is in the basement and this is related to the doctor, maybe there is a poisoning or something like that. But for the others it was different." (Marvis, G1)

The excerpt above illustrated that Marvis, as a ghost in the *Mysterium* (the collaborative board game), had choices to decide which vision cards to give to the other players (psychics), but she mentioned that the other players did not have such choices. Her opinion corresponds to Windy, who was also the ghost in the board game. In the excerpt below, Windy compared both types of game and expressed her opinion that *Camel up* gave her less freedom to choose as the progress of the game was uncertain and her moves largely depended on other players' moves.

> "As a ghost, I do have a lot of free will free decision. You guys, you guys, made final decisions based on my cards. So from that part, I'm pretty free giving decisions. And the second one (*Camel up*), like even though, I think I have free choices to make my own decision about next time, there are a lot of uncertainties like, I don't know, like, my probably the next person is going to put, you know, a barrier next to my camel. So, and there's a lot of things I'm not sure. So that could, you know, kind of hindered me from making a lot of decisions that could get one. …I think for the second one, it looks like we have a lot of choices. But it turns out some of the choices are bad, you know, because we know it's not going to, let's say let's say the blue camel is here. But there are some yellow camels here, but the blue dice is, is being used, oh, you know, not choose the blue camel. So they're like some part of decisions we just abandon. We

don't choose that. So based on that, I think the second one there were not a lot of decisions to me" (Windy, G2)

Similar to Windy, Sam, as one of the psychics, also agreed that *Mysterium*, the collaborative board game, provided them opportunities to choose by interpreting the vision cards and guess the correct murderer, murder weapon, and the location where the ghost was killed.

"I pick the first one (*Mysterium*) has more choice in terms of picking cards choosing who's the murder like the choice is because of she (the ghost) has different opinions I have different opinions. My ideas is understanding how she picks up pick those cards and it's very complicated in some type of way. Yeah, although we don't have much choice but looking at the pictures understanding pictures is part of choices." (Sam, G2)

Different from Sam and Windy, Mary and Charlotte thought that *Camel up*, the competitive board game, afforded the players autonomy while playing the board game. Both thought that the competitive board game design allowed them to use strategies to take control over their moves.

"I was thinking about the second one (*Mysterium*), but I think, yeah, at the end if you like, even if it's your choice at the end, it's based on, like, overall opinions and everything. And also, like, even if you wanted to do something you need to fit in, like in the character that she was thinking about. So it's not really that much your choice.

So yeah, and the first one (*Camel up*) you can, like, choose between the four options, each time that you're playing, and it's like, under your own control what you want to do." (Mary, G1)

"To make a decision, you have a freedom to decide your space, they did give you choices, but I feel like for the second one (*Camel up*), you could choose more profound like you could, you could get more reasons why you made this decision. Because for the first one (*Mysterium*), it was more like, Okay, I feel like it might be that card. But it was not. Like of course, you had reasons why, but they didn't necessarily need to be true. And for the second one it was more like, Okay, I have that strategy. And if I do this, this will happen. So I feel like for the second one, they were more profound. You have better reason for it." (Charlotte, G2)

It is worth noting that while the interview data corroborated some of the questionnaire results, showing that game design contributed to L2 English speakers' negative and positive perception of autonomy for both types of the board games, peer influence as a factor for their negative perception of autonomy was not mentioned in the focus group interview.

In terms of fulfillment of the psychological need of competence, some participants felt competent and accomplished after playing the collaborative board games due to game design and individual differences factors (e.g., personal preference), as shown in Sam and Zane's interview responses below:

"For the first one (*Mysterium*) I made reasonable guesses. And at that moment I felt

accomplished because I made reasonable answers. But the second one *Camel Up*, I think I could do much better if I can play the game twice." (Sam, G2)

"For me I'm I really like reading detective novels and like finding out mysteries. Oh, this game was really interesting. And I really wanted to find the killer, so I was invested in. So when I found out the killer I felt really good. The second one (*Camel up*) I was just losing money." (Zane, G2)

On the other hand, Zane also felt incompetent due to his constant loss of money when playing Camel up (the competitive board game), suggesting personal achievement had a negative influence on Zane's sense of competence. In addition to Zane, Windy also reported personal achievement as an important element for a sense of competence after she played the competitive board game, as well as peer collaboration and support as a crucial component for her feelings of competence after she played the collaborative board game:

"I think the first one (*Mysterium*) is if if I find out they when they saw my vision cards they will you know reasonably think the same way as I do. I feel highly accomplished if they think in the same way. I will feel oh we were we think the same. I will feel pretty accomplished. And the second one (*Camel up*) I remember the first time when I when I when I guess the right the right color. I took 8 coins I feel so much accomplished. Yeah, I definitely say the second one make me more accomplished. Yeah." (Windy, G2)

Windy's reflection corresponded to the questionnaire data, providing further evidence that playing both types of board games may or may not make players feel competent due to different aspects of the board game interaction.

Perhaps the non-significant statistical results found between the perception of competence after they played the two types of board games may be explained by the goal of the participants-players set for the board games and the fact that the participants put their best foot forward to play both games, as shown in Marvis's interview response below:

> "For both of them, I didn't focus on winning the game. I just I, of course, I have a goal. But this is not about like, for the whole game. This isn't about just winning, I just tried to like enjoy during the process and understand the game, because for both of them, it was my first time. And then I just tried to understand the general rules like not about just winning the game." (Marvis, G1)

Marvis later on reflected that she felt competent after playing both types of board games because she concentrated on playing the games. Mary concurred with Marvis's view.

> "I guess I for both of them too. Because like for the first one (*Camel up*), I tried to first of all I tried to understand and then like I tried to do my best during the game. And for the second one (*Mysterium*) also, I even if this is like based on my interpretation to choose the cards, but I just focus on the choose the most appropriate ones. So for both of them." (Marvis, G1)

> "I felt competent on both. Because even if I didn't win the first one (*Camel up*), I was

like doing my best. And in the second one (*Mysterium*) also, I was like the one who takes longer to figure out the character. But yeah, I felt like even though I was doing my best." (Mary, G1)

To sum up the key finding for research question four, peer support and/or collaboration played a key role in satisfying the players' psychological need of relatedness, regardless of board game types. Game design also played a crucial role in fulfilling or thwarting L2 English speakers' psychological need of autonomy and competence for both competitive and collaborative board games. In addition to game design, personal achievement played a role in satisfying L2 English speakers' competence during the competitive board game.

4.5 Factors influencing L2 English speakers' engagement with board games

The fifth research question explored factors affecting L2 English speakers' (dis) engagement with collaborative and competitive board games. Findings based on research participants' responses to end-of-game open-ended questionnaires, triangulated with focus group interviews, are presented below.

As can be seen in Table 4.5, the most prominent influencing factors for engagement with the two board games are pertinent to the games: game design and game type. Specially, game design greatly contributed to participants-players' engagement and disengagement with the competitive and collaborative board games. For the competitive board game, game design was mentioned 23 times as the top reason for L2 English speakers' engagement (29.87%), but it was also the major reason that led to their disengagement with the board game (57.14%, 4 mentions).

This phenomenon was even more pronounced in the collaborative board game. 38.36% (28 mentions) attributed their engagement with the board game to its game design, whereas 75% (9 mentions) viewed game design as the most important factor for disengagement. With respect to game type, it played a greater role in L2 English speakers' engagement with the competitive board game (16.88%, 13 mentions) than that of collaborative board game (4.11%, 3 mentions). The second important overarching factors influencing engagement with the board games were related to peer players, especially peer collaboration or support and peer interaction. Collaboration with and support from peer players was the second important factor accounting for players' engagement with the collaborative board game (26.03%, 19 mentions), followed by peer interaction (13.7%, 10 mentions). However, peer collaboration and support and peer interaction (both had 12.99%, 10 mentions for each) played a lesser yet still important role in (the third and fourth factors) influencing L2 speakers' engagement with the competitive board game. Individual differences also accounted for L2 English speakers' engagement with board game interactions. In particular, preferences for playing board games in general or new or a certain type of board games and having outgoing, social, and competitive, or creative personality (16.89%, 13 mentions for competitive board game; 13.7%, 10 mentions for collaborative board game in total) positively influenced these players' engagement.

Overall, participants-players frequently reported factors for their engagement with the two board games (a total of 77 mentions for the competitive board game and 73 mentions for the collaborative board game) than factors contributing to their disengagement with the board games (7 mentions for the competitive board game and 12 mentions for the collaborative board game),

suggesting that both *Camel up* and *Mysterium* successfully led to L2 English speakers' engagement in out-of-class English interaction with other international students.

Table 4.5

Factors Influencing Engagement with Board Games

Factors influencing task engagement and disengagement	Competitive board game		Collaborative board game	
	Positive	Negative	Positive	Negative
Social factors				
Peer collaboration or support	**12.99% (10)**	0	**26.03% (19)**	0
Peer interaction	**12.99% (10)**	0	**13.7% (10)**	0
Peer identity	1.3% (1)	14.29% (1)	1.37% (1)	0
Peer influence	5.19% (4)	14.29% (1)	2.74% (2)	16.67% (2)
	32.47%(25)	28.58%(2)	**43.84% (32)**	16.67%(2)
Game factors				
Game design	**29.87% (23)**	**57.14% (4)**	**38.36% (28)**	**75% (9)**
Game type	**16.88% (13)**	0	4.11% (3)	0
	46.75%(36)	**57.14% (4)**	**42.47%(31)**	**75% (9)**
School/academic factor				
School responsibilities	1.3% (1)	14.29% (1)	0	8.33% (1)

	1.3% (1)	14.29% (1)	0	8.33% (1)
Individual speaker factors				
Preference for (playing new or a certain type of) board games	7.79% (6)	0	6.85% (5)	0
Personality	9.1% (7)	0	6.85% (5)	0
Enjoyment	1.3% (1)	0	0	0
Attitudes towards playing the board game	1.3% (1)	0	0	0
	19.49% (15)	0	**13.7% (10)**	0
Total	100% **(77)**	100% (7)	100% **(73)**	100% (12)

Note. The number in the bracket represents frequency count. The bold ones are highlighted results (frequency counts were higher than others).

Focus group interviews with two groups of participants corroborated participants' questionnaire responses. The excerpt below suggests that even being a ghost in *Mysterium* (the collaborative board game), participants still engaged in the board game by listening to other players' (psychics) discussions and attempting to find out the best vision cards as clues for the other players:

"I think for me, as a ghost that hindered me from being engaged, because I cannot talk. But I mean I still engage some part like when I send cards to them, I will see how other

response to my card like so I make choice based on their thoughts on cards make a better decision later. That's the part where I get engaged." (Windy, G2)

Windy later on expressed her view on her engagement with *Camel up*, which also showed that both the competitive and collaborative board game design made her engage in different ways.

"I' m pretty engaged. Because I fully focus on my, you know, my, my strategy or my plan for my future moves, I will, will kind of, you know, just measure which which colors of the camel will give more chances of getting the winner, So yeah. Because, yeah, like I said, I have to think like to measure the probability of each color getting win at the end. Yeah. So yeah, that that makes me focus. And also, yeah, just stay involved. Stay focus." (Windy, G2).

Other participants also mentioned other aspects of the collaborative and competitive game design that engaged them, as can be seen in the following excerpt. For example, Zane thought that the *Mysterium*, as a mystery game, kept him engaged.

"I think the first one (*Mysterium*) is more engaging, because we were just focused on the cards. We are just trying to solve the mystery." (Zane, G2)

On the other hand, collaborative and competitive board game design was also a major source of disengagement. For example, for *Mysterium*, the collaborative board game, Catherine had problems understanding the rules at first and figuring out the other players' thinking.

"I think what hindered my engagement was at the beginning where we couldn't understand the rules. But then after we tried to understand the game rules, it was easier to understand

how the game works. The second thing that hindered me was not having the same interpretation. Because I felt like they had the same interpretation, but I was completely different. I was like, Oh, the shore is this and then she (the ghost) said no, it was like, okay, my interpretation is all wrong. So it's kind of like Okay, let's go back to zero and then follow what they're doing." (Catherine, Group 1)

Game design also contributed to the participants' disengagement during the competitive board game, as shown Catherine's response below:

> "It is interesting. But once we learned the like, dynamics, it was easy. We're just playing and not saying anything." (Catherine, G1)

In addition to game design, the participants also mentioned that game type as a factor affecting their engagement, which echoed questionnaire results. Both types of board games contributed to their engagement in a positive way:

> "And the second one (*Camel up*), I would say it's fun, and also engaging because all of us were invested in the game. Everyone was playing for themselves and trying to win, but game itself kept us all hooked. You know, trying to play." (Zane, G2)

> "You didn't have to consider your decisions with other people. So I feel like it was more engaged for the camel up." (Charlotte, G2)

As shown in the excerpts, in terms of the competitive board game, participants engaged in the board game because it allowed them to make independent choices and to win as an individual. In addition to Zane and Charlotte, Sam concurred with their views. For the collaborative board game, it also made the participants engage, as can be seen in Catherine and Maria's view below:

> "So the second one (*Mysterium*) made us interact a lot more (Yeah, Maria concurred). It was a collaborative one. The first one was like, okay, play Okay, your turn. It was like in silence." (Catherine, G1)

Focus group interviews also corroborated questionnaire results of the important role peer players played in engagement with the board games. In the following excerpt, Charlotte mentioned that peer collaboration contributed to their engagement while playing *Mysterium.*

> "I feel like for the first game, we collaborated a lot. We could also just have chosen, like, for our own and not discussed anything. But I feel like we did that very well. We always looked also at the others cards and tried to decide together as far as possible. And also she (the ghost) adapted her strategy to our consideration. So she also like, joined the collaboration, even though it was hard for her as a ghost. And for the second game (Camel up), as she said, there was not many chances to collaborate." (Charlotte, G2)

Individual differences also influenced L2 English speakers' enjoyment of the two types of board games (especially preferences for a certain type or design of board game), but they were not

mentioned as a factor causing the participants-players' engagement with the board games during the focus group interviews.

To summarize the key findings for research question five, the most prominent influencing factor for engagement with the two board games is game design. Collaboration with and support from peer players also played an important role in L2 speakers' engagement with the board games, especially the collaborative board game.

5. Discussion

This chapter focuses on the discussion of research findings of my dissertation project. The results and findings of the present study are organized into five sections in accordance with the five research questions: (1) difference(s) in perceived psychological need satisfaction after L2 speakers play competitive and collaborative board games; (2) differences in engagement with the board games by game type (3) the relationship between psychological need satisfaction and aspects of task engagement with two board games; (4) perception of competitive and collaborative board game interaction that support psychological need satisfaction; and (5) factors influencing L2 speakers' engagement with collaborative and competitive board game interactions. Following the interpretation of the research findings, I then present theoretical, methodological, and practical implications of this study. This chapter ends with a discussion on limitations of the study and propose a few directions for further research.

5.1 Difference(s) in perceived psychological need satisfaction by game type

The first research question asks if there is any difference between L2 English speakers' satisfaction of basic psychological needs of autonomy, competence, and relatedness after playing competitive and collaborative board games. The results showed that L2 English speakers' perception of level of autonomy was significantly higher when playing *Camel up*, the competitive board game than when playing *Mysterium*, the collaborative board game. On the other hand, it was found that their perceived relatedness to other fellow players was significantly higher when

they played the collaborative board game (*Mysterium*) than when they played the competitive board game (i.e., *Camel up*).

The reason why L2 English speakers' perception of level of autonomy was significantly higher when playing *Camel up*, the competitive board game than when playing *Mysterium* may be explained by Leeming and Harris's (2022) argument and reinterpretation of Lambert et al. (2017) that L2 speaker-learner generated task content may make learners feel autonomous when they are free to create their own task content. Applying to the context of out-of-class task-based game interaction, *Camel up* afforded the players freedom to choose their own move, even though other players' previous moves may influence the decision of the next player's move. The finding suggests that playing the competitive board game offers L2 English speakers a great autonomy-supportive opportunity to satisfy their psychological need of autonomy. On the other hand, as a collaborative board game, *Mysterium*, required participants to collaborate with one another to figure out the murderer of the ghost, the murder weapon, and the location where the ghost was killed. Even though the ghost almost could not say anything during the board game, other players who played the role of psychics still felt that they tried to collaborate with the other players (psychics) by carefully listening to their discussion and thinking process and by providing them with the most suitable vision cards for interpretation. Playing *Mysterium* encouraged a sense of belonging and connection among the players, thereby satisfying psychological need of relatedness, which corresponded to Sailer et al.'s (2017) gamification study which found relatedness was positively influenced by factors like teammates, avatars, and a meaningful story. This result suggests that study abroad educator and coordinator use the collaborative board game to provide common topics to L2 English speakers from diverse linguistic and cultural

backgrounds for them to interact with one another, helping address the issue of lack of common topics and opportunities for social interaction with others in the target language during study abroad (Lehto et al., 2014; Li & Zizzi, 2018; Wu et al., 2015). The result also provides empirical evidence for recommendations made in the existing literature (Zhou & Rose, 2023).

With respect to the non-significant difference in perceived competence found in the two types of board games, focus group interviews with the participants revealed that the goal of the participants-players set for the board games was not about winning, but rather about enjoying the process and putting their best foot forward to play both games. Participants' attitudes towards the goal of playing board games may explain the non-significant result. In addition to this plausible explanation, another reason may be because most players felt competent if they won more Egyptian pounds than others during *Camel up* and most players are also likely to experience feelings of competence when they worked together to solve the mystery of the murderer, murderer location, and weapon for the ghost while playing *Mysterium.* The feelings of increased success and achievement for both competitive and collaborative board games made them feel competent.

5.2 Difference(s) in task engagement by game type

The second research question asks if there are significant differences in engagement with the competitive and collaborative board games. The results showed that L2 English speakers produced more on-task talk while playing the collaborative board game than the competitive board game, with a medium to large effect size. Their perception of their cognitive engagement also aligned with the coded measure of cognitive engagement, with a large effect. On the other

hand, although L2 English speakers produced significantly more responsiveness instances during the competitive board game than during the collaborative board game, they felt collaborative board game induced higher level of social engagement than the competitive board game, with a large effect size. With respect to emotional engagement, no significant difference in engagement was found between the two types of board games.

The reason why playing collaborative board game led to higher level of cognitive engagement than playing the competitive board game may be because of the type of the board game. Specifically, *Mysterium*, the collaborative board game, requires L2 English speakers to figure out the potential murderer, the location of the murder, and the weapon used to kill the ghost through discussion and collaboration. During the board game, players had to work hard and work together by exercising their interpretation and critical thinking skills to make accurate guess. On the other hand, *Camel up*, the competitive board game, did not involve a lot of complicated thinking, deduction, and discussion. As a result, L2 speakers did not feel a need to justify their thoughts. They also did not think they and their fellow players thought hard to contribute to the board game.

The mixed results of participants' social engagement as measured by their perception and actual interaction behavior may be explained in the following ways: both short and simple backchannels and other longer responses to peer players' interaction were coded as social engagement. Although participants playing *Camel up* produced more responsiveness instances, many of them were short and simple backchannels or shorter replies to peer players' utterances. Compared with the competitive board game, *Mysterium*, the collaborative board game, involved more elaborate, longer, though fewer responses to their peer players' contribution and

backchannels, which possibly made participants perceive higher level of social engagement than the competitive board game. This explanation may be supported by number of words produced by the players: participants produced a lot more utterances while working with others during the collaborative board game than while playing the competitive board game.

With respect to emotional engagement, participants experienced more positive emotions while playing the competitive board game than while playing the collaborative board game, yet such a difference was non-significant and the effect size was small. The reason for such result might be because while both games offer different kind entertainment, they all made L2 speakers experience positive emotional engagement. Playing the collaborative board game made the players enjoy the process of winning or losing together and of interpreting abstract vision cards from the ghost. And some of the ghosts also enjoyed the process of attempting to understand the other psychics' thinking and getting them to the next stage of the board game. On the other hand, while playing the competitive board game seemed not to involve collaboration, some players reported their and their peer players' collaboration and help during the board game made them engage with the board game interaction. More importantly, L2 English speakers may be emotionally engaged in the competitive board game because of game mechanism, which required them to compete against one another in an amusing, exciting way. Players demonstrated positive emotional engagement when they won Egyptian pounds, when two dices came out from the pyramid box, and when they made correct bets. The results, along with the small effect size, suggested both types of board games could promote L2 English speakers' emotional engagement with the board games.

5.3 The relationship between BPN and engagement with board games

The third research question investigates the relationship between satisfaction of basic psychological needs and aspects of task engagement during competitive and collaborative board games. The reason why cognitive engagement had no significant relationships with autonomy, competence, and relatedness despite the board game type may be that for both competitive and collaborative board games, all the participants' moves, decisions, utterances were influenced by their peer players.

The study found that both coded measure (responsiveness instances) and rated measure (perceived collaboration and mutual help) of social engagement had significant, positive relationships with relatedness, with small to medium and medium to large effect sizes for the coded and rated measure, respectively for both types of board games. Such significant, positive relationships between the basic psychological need of relatedness and social engagement might be because both competitive and collaborative board games offer L2 English speakers opportunities to communicate and interact with one another with a genuine reason (i.e., to play the board games) (Leeming & Harris, 2022). Through responding to and acknowledging their peers' utterances and contribution, L2 English speakers felt connected with one another as they played together and tried to understand the game rules. Different from Peng et al.'s (2012) study on exergame who manipulated the game design features in competence and autonomy and examined the effects of psychological needs of autonomy and competence on motivation and engagement and found that manipulated autonomy-supportive and competence-supportive game features had significant effects on motivation and engagement, this study provides new evidence that this psychological need is important can enhance L2 English speakers' social engagement

with the board game, which may be helpful for L2 English speakers to break cultural barriers because it may provide them 'common topics' for social interaction and even help develop their multicultural friendship (Li & Zizzi, 2018, Wright & Schartner, 2013; Wu et al., 2015).

It was also found that emotional engagement had a significant, positive relationship with autonomy, regardless of board game type. And the effect sizes for both types of board game were small to medium. The results suggest the importance of choice for L2 English speakers' emotional engagement, and that playing board games offers a great autonomy-supportive opportunity that increased L2 speakers' emotional engagement. When L2 English speakers had freedom to decide their next moves or select the potential murderer, murderer weapon, and the murder location, they reported higher level of emotional engagement. The present study contributes to the existing literature in the following ways: first, different from Peng et al. (2012), in which the researchers manipulated exergame (video game) design features in terms of autonomy and competence and found that autonomy-supportive and competence-supportive game features significantly contributed to players' engagement, this study did not manipulate the environment. Rather, it compared the impact of game type on BPN and engagement, and the results specifically pointed out that there was a significant, positive relationship between the feeling of autonomy and emotional engagement. Second, previous studies have showed that when students felt satisfied with the psychological need, they engaged in their either language learning or other school subjects, and that teachers have played a major role in such research (Noels et al., 2020), this study adds to the existing literature through extending the self-determination theory to out-of-class learning to show how game type was linked to specific psychological needs satisfaction and engagement constructs.

There are two major differences between both competitive and collaborative board games in terms of the link between psychological needs satisfaction and aspects of task engagement, though both had small-to-medium effect. For the collaborative board game, a significant, positive relationship between responsiveness instances (coded measure of social engagement) and basic psychological need of competence was found. In addition, perceived emotional engagement had a significant, positive relationship with psychological need of relatedness. However, these two significant differences were not found in the competitive board game. The reason why responsiveness instances, the coded measure of social engagement, was associated with basic psychological need of competence may be that responding to peer players' utterances and contributions made their peers feel a sense of achievement and acknowledgement of their participation and contribution to the board game play, which is particularly important for the collaborative board game. Besides, the board game interaction did not require perfect use of English language to communicate. Rather, responding to other players' questions and sometimes with positive feedback from the listeners was based on the progress of the game, which made players feel competent and accomplished. Emotional engagement was associated with the psychological need of relatedness when L2 speakers played the collaborative board game because these players were not acquainted with one another before the study took place. Becoming connected with the other players may promote their emotional engagement to work collaboratively with their new friends for the collaborative board game (Agawa, 2020). The result highlights the usefulness of playing collaborative board games for connecting L2 English speakers from linguistically and culturally diverse backgrounds, and providing them with a venue to relate to other international students and become emotionally engaged in social and intercultural interactions.

5.4 Perception of board games that support or thwart BPN

Research question four asks L2 speakers' perception of aspects of board games that support L2 English speakers' basic psychological needs of autonomy, competence, and relatedness in competitive and collaborative board game interactions through open-ended self-report questionnaires and focus group interviews. While L2 speakers' responses could be categorized into social, game, and individual speaker elements, the major findings are that peer support and/or collaboration played a key role in satisfying the players' psychological need of relatedness, regardless of board game types, whereas game type thwarted participants' feelings of relatedness after they played the competitive board game. Game design also played a crucial role in fulfilling or thwarting L2 English speakers' psychological need of autonomy and competence for both competitive and collaborative board games. In addition to game design, personal achievement played a role in satisfying L2 English speakers' competence during the competitive board game, whereas peer support and collaboration was the second important element that made them feel competent and accomplished during the collaborative board game.

The finding that peer support and/or collaboration played a key role in satisfying the players' psychological need of relatedness, irrespective of board game types is similar to Sailer et al. (2017). Because L2 English speakers need to work collaboratively or help one another understand the rules of the games to play the board games, teammates play a crucial role in enhancing their relatedness. In addition, like Sailer et al.'s gamification study which found that perceived task meaningfulness, whereas avatars, meaningful stories, and teammates affect experiences of relatedness, the board games used for the current study also involved some sorts

of avatars and a meaningful story. In *Camel up*, L2 English speakers play the role of Egyptian gamblers, betting which colorful camel will win the camel race. The first camel who crosses the finish line wins the board game, and the Egyptian gambler who wins the most Egyptian pounds wins the betting game. In *Mysterium*, all the players play either psychics or ghost to help solve the mystery of a murder (why and where the ghost was killed, which weapon was used to kill the ghost) or provide helpful clues to help the psychics. The chosen competitive and collaborative board games enhanced the participants' feelings of relatedness because of peer collaboration and support. Such result suggests that study abroad educators and coordinators use board games to make L2 English speakers from diverse countries relate to one another by encouraging them to help one another (e.g., understanding game rules, passing dices or counting money or rewards, solving the mysteries).

This study also found that game type was perceived as an aspect that thwart L2 English speakers' relatedness, but its influence existed only for the competitive board game and the psychological need of relatedness (i.e., not autonomy and competence). The most plausible explanation is that although the participants helped one another while playing the competitive board game (e.g., passed Egyptian pounds for winners and losers after each round, putting the dices back to the pyramid), the goal of the game required them to use strategies to compete against one another. This new research finding suggests that game type is important when it comes to enhancing L2 English speakers' feelings of relatedness.

Game design also played a crucial role in fulfilling or thwarting L2 English speakers' psychological need of autonomy and competence for both competitive and collaborative board games. The research finding corresponds to both Peng et al. (2012), Sailer et al. (2017), Watkins

(2022), and Li et al. (2022). While the present study did not manipulate autonomy-supportive and competence-supportive game features like Peng et al. (2012), many participants reported game design as an important factor satisfying or thwarting their psychological needs of autonomy and competence. The complex rules and abstract vision cards in *Mysterium* and continued loss of Egyptian pounds in *Camel up* made participants feel less competent, whereas allowing them to choose one out of the four strategies to play *Camel up* made them experience the feelings of autonomy. Similar to Sailer et al. (2017), who found competence regarding task meaningfulness was affected by badges, leaderboards, and performance graphs, this study found that personal achievement played a role in satisfying L2 English speakers' competence during the competitive board game. When L2 English speakers made a correct bet or had a wise move due to their decision (though as some noted that their moves were influenced by others), they experienced the feelings of competence. The finding that peer support and collaboration was the second important element that made them feel competent and accomplished during the collaborative board game is line with Leeming and Harris's (2022) argument that group interaction fulfill the psychological needs of relatedness and competence as participants work things out.

5.5 Factors influencing L2 speakers' engagement with board game interactions

Research question five explored factors affecting L2 English speakers' engagement with competitive and collaborative board games. Findings based on research participants' responses to the focus group interview and end-of-game questionnaires showed that the most prominent influencing factor for engagement with the two board games is game design. Collaboration with

and support from peer players also played an important role in L2 speakers' engagement with the board games, especially the collaborative board game.

The study found that the most prominent influencing factor for engagement with the two board games is game design. This study also echoes Nakamura et al. (2021). When game task design is L2 speaker-oriented, it gave them plenty of opportunities to interpret the vision cards and freedom to choose their strategies and control their progress during the camel betting game.

Collaboration with and support from peer players also played an important role in L2 speakers' engagement with the board games, especially the collaborative board game. The result might be that when L2 speakers showed their initiative in helping others and being collaborative, they feel their partners were doing the same and trying to continue playing the board game, which made them engage with the competitive and collaborative board game interactions. As shown in the number of words produced during the two types of board games, L2 English speakers produced a lot more utterances when they were playing the collaborative board game than when they were playing the competitive board game. Their need for help and initiative in helping others manifest not only in social and emotional aspects of engagement with the board game but also their output while playing the collaborative board game, though the time lengths for both types of board games were almost equal. Taken together with the findings above, the study highlights the usefulness of taking a top-down approach to investigate multiple factors influencing L2 English speakers' task engagement (Aubrey, 2017 b, 2021, 2022; Aubrey et al., 2020).

5.6 Theoretical, methodological, and practical implications

In terms of theoretical implications, the present study provides empirical evidence for the self-determination theory. Extending basic psychological needs theory, the study showed that relatedness and autonomy are linked to social and emotional aspects of task engagement, respectively as manifested in L2 English speakers' interaction during the out-of-class board game task interactions. The study also reported that for the collaborative board game, a significant, positive relationship between the coded measure of social engagement and basic psychological need of competence. In addition, when playing the collaborative board game, psychological need of relatedness had a significant, positive relationship with perceived emotional engagement. While some studies have revealed the link between perceived basic psychological need satisfaction and student engagement in instructed contexts, none of them have drawn on the model of task engagement and applied it to interaction and learning beyond the classroom. The present study extends the link between perceived psychological need satisfaction and self-ratings (perception) of engagement in a course to the link between perceived psychological need satisfaction and actual behaviors of task engagement. Moreover, by analyzing and interpreting L2 English speakers' attributions to engagement with the board games, this study presents in-depth analysis of several factors contributing to engagement with board game task interactions than previous studies that have taken a very narrow cognitive-psychology perspective. Understanding how individual L2 English speakers describe their BPN and engagement in their own words through open-ended questionnaire data and focus group interviews can provide insights into the complexity of the engagement and BPN construct and serve as a basis for future work on the model of L2 speakers' engagement beyond the classroom.

The methodological implications of this study are as follows: First, by comparing collaborative versus competitive board games in terms of psychological need satisfaction and task engagement, the researcher can better make concrete empirical recommendations based on research findings. In existing literature, few studies have examined and compared different characteristics of learning tasks or methods to satisfy L2 speakers' psychological needs (Leeming & Harris, 2022). Therefore, the research findings are not useful due to lack of clarity in research design and superficial practical applications and implications they offer (Al-Hoorie et al., 2022). Second, by linking L2 speakers' perception of fulfillment of basic psychological needs with their actual engagement behaviors during board game interaction and their perception of engagement with the board games as well as by collecting both quantitative and qualitative data, the study provides rich perspectives of the relationships between basic psychological need satisfaction and L2 speakers' engagement at the task/game level.

The present study also offers several implications for study abroad and intercultural education. In general, the research findings suggest that the use of different types of commercial board games can be a great way to fulfill L2 English speakers' psychological needs and facilitate their engagement in English. In particular, while this study found that *Camel up*, the competitive board game, could better fulfill the psychological need of autonomy, *Mysterium*, the collaborative board game, better enhanced L2 English speakers' feelings of relatedness. In addition, while the study found that both competitive and collaborative board games can satisfy L2 English speakers' different aspects of psychological need, and that psychological needs of autonomy and relatedness are linked to social and emotional engagement with the board games, the collaborative board game offers additional psychological benefits: satisfying L2 English

speakers' psychological need of competence can make them socially engaged in the board game interaction, and satisfying L2 English speakers' psychological need of relatedness can facilitate their emotional engagement. Based on the research findings, to better connect international students coming from different linguistic and cultural backgrounds and promote their engagement in L2 English interaction, the collaborative board game appears to be an optimal choice. Universities and other study abroad programs are advised to frequently organize some free board game (night) activities and use collaborative board games to connect international students from diverse linguistic and cultural background. More efforts should be made to invite international students to join a board game school club. The research findings are also relevant to board game materials designers. Developers of board games may tap into the characteristics and design of board games and design engaging materials to facilitate engagement in L2.

Extending the research findings to pedagogical tasks and educational settings, the current study suggests the importance of taking into account game type and other game-related and peer related factors that affect BPN and engagement with board game interactions when designing and implementing pedagogical tasks or educational board games in the classroom contexts. This study showed that the competitive board game made L2 English speakers experience feelings of autonomy, which was beneficial to their social and emotional engagement with the board game interactions. Participants' responses to open-ended questionnaire responses further revealed that game design may a double edge sword that can either facilitate or thwart L2 speakers' autonomy, and negative influences from peer interlocutors can thwart one's autonomy. These findings indicate that teachers and educational board game designers may want to choose and/ design board games that allow L2 learners to make personal decisions independently. In this study, the

participants could choose one out of four actions to take when it was their turn while playing the competitive board game. Such game design element is encouraged and can be easily integrate into pedagogical tasks by giving L2 learners more choices and strategies to work on the games or tasks. Teachers may even ask learners to become knowledge creators by creating their own tasks or board games. This pedagogical implication is congruent with learning by designing where learners learn a foreign or second language by designing a game or a task on their own or with collaboration from their peers (Zapata, 2022). Instructions on the usefulness of following one's heart and concentrating on their own strategies while working on the tasks or playing educational board games may also be given. L2 learners should also be told that it is inevitable that their decisions and moves sometimes may be influenced by other players' moves and strategies because of the nature (i.e., social, interactive) of the board game or pedagogical tasks. Understanding and guessing other's moves is a valuable learning process as it allows game players to exercise their critical thinking skills. On the other hand, other new research finding of the present study highlights the need to design board games or collaborative tasks that encourage L2 learners to work collectively to foster a sense of connection and belonging among L2 learners, the feeling of competence, and social and emotional engagement. The learning by design approach can be reasonably applied to collaborative learning tasks or board games by requiring L2 learners to collaboratively design a board game and task(s). Given that L2 English speakers perceived game design negatively when they reflected on the element and aspect that related them with other players in the present study, teachers may want to ask all the group members to participate in task or game creation process. Attention should be paid by giving learners tasks and instructions with desirable difficulty level as abstract instructions and difficult tasks that require

complex thinking process and ability may overwhelm L2 learners who might still struggle with L2 communication.

5.7 Limitations and future research directions

This study is not without limitations. Given the limitations identified below, future research work is needed to further shed light on this topic:

First of all, this experimental study focused mainly on L2 English speakers' perception and language behavior of social and cognitive engagement of two types of board games through a psychology perspective, it should be noted that engagement in a task can be heavily affected by the social environment, cultural expectations, or even physical surroundings, and that engaging with other disciplines, such as sociology, anthropology, or even philosophy can provide a more comprehensive view of constructs like engagement and emotions. For example, anthropological perspectives might highlight how different cultural practices and norms influence emotional expression and engagement. Taking interdisciplinary perspectives can broaden our understanding of the complexity of engagement beyond the classroom.

Second, the present study only investigates L2 speakers' psychological need satisfaction and task engagement through one collaborative board game and one competitive board game. Because board games of the same types have different themes, rules, complexity levels, the results may not be generalized to all the board games. Future research that investigates L2 speakers' engagement with other competitive and collaborative board games is needed.

Third, this study did not have equal number of post-game engagement questionnaire items for different aspects of task engagement (cognitive, social, and emotional) because the researcher later on removed two items that looked specifically at L2 speakers' attention to language (cognitive engagement with language) to align the research instrument with the purpose and population of this study.

Fourth, this study used focus group interviews for convenience and to manage the duration of the research sessions. However, a limitation of this method is that participants may not be completely honest or forthcoming about the factors influencing their BPN and engagement when peers are present. For instance, while many participants noted positive and/or negative peer influences on their BPN and engagement in their questionnaire responses, these peer factors were rarely mentioned during the focus group interviews. Future research could benefit from conducting individual interviews with L2 English speakers to gain deeper insights into this important issue.

Fifth, while the rationale of focusing on the population of international university students has been justified, in the real world, it is also common that international students will want to have social interaction with native speakers of English and L2 English speakers who are not international students and establish rapport and friendship with them. Therefore, it would be interesting if future studies include native speakers of English or L2 English speakers who do not hold international student status. Future studies may also explore the population of non-matriculated student who enrolled in credit courses that do not lead to a degree. Future studies may also test the research idea by recruiting L2 learners learning English at language school and perhaps include pre-game pedagogical intervention on pragmatic aspects of language use and

vocabulary items that may be useful during board game interaction. By connecting L2 learners' out-of-class learning to their in-class learning, learners may easily recognize the relevance between the two and feel motivated to learn. Moreover, repeated and extended opportunities for language use through board game interactions that rehearses newly established declarative knowledge from pre-game instruction may be more likely to lead to proceduralization of language skills (DeKeyser, 2017).

Finally, the researcher noticed many groups of participants had small talk before, during, and after the board game interactions. Some of them even exchanged social media accounts (i.e., Instagram, Facebook, What's App) in order to keep in touch with one another and build friendship. Future research may look at the types and topics of small talk international students engage in when they have a chance to play board games together. Studies may also look into the long-term effect of such an intercultural English as a lingua franca social interaction opportunity on international students' engagement in other future intercultural events or social activities (e.g., outing, cooking classes).

6 Conclusion

This chapter revisits the rationales behind this dissertation project, which is followed a summary of key research findings of the study.

The study set out to address a number of challenges and difficulties facing international students pursuing degrees in English-speaking countries, such as cultural barriers, lack opportunities for social interaction, lack access to social contact and interaction with others using the target language, and lack of engagement with learning opportunities available by comparing the effect of different types of board games for out-of-class engagement. This study argues that the effect of board games on perceived psychological need satisfaction and engagement with board game play may differ as a result of the type of board games L2 English speakers play, and that perceived psychological need satisfaction may have different relationships with aspects of task engagement. In addition, the present study explores L2 English speakers' perception on the elements that fulfill their basic psychological needs for autonomy, competence, and relatedness and factors influencing L2 speakers' engagement with board game play.

The research findings revealed that international students who felt satisfied with their psychological needs of autonomy and relatedness are more self-determined and socially and emotionally engaged with the two types board games. In particularly, playing the collaborative board game can enhance their feelings of autonomy, relatedness, and competence, making them feel more connected with and engaged in English interaction with international students from diverse linguistic and cultural backgrounds. With respect to L2 English speakers' perceptions about elements of the competitive and collaborative board game interactions that support their

psychological needs of autonomy, competence, and collaborative board games, major findings are that peer support and/or collaboration played a key role in satisfying the players' psychological need of relatedness, regardless of board game types. Game design also played a crucial role in fulfilling or thwarting L2 English speakers' psychological need of autonomy and competence for both types of board games. In addition to game design, personal achievement played a role in satisfying L2 English speakers' competence during the competitive board game, whereas peer support and collaboration was the second important element that made them feel competent during the collaborative board game. As for factors leading to L2 English speakers' engagement with board game interactions, game design, game type, and collaboration with and support from peer players were identified as the most prominent factors influencing L2 speakers' engagement with the board games. Based on the research results and findings, a few implications and recommendations were discussed. The implications for practice include the use of board games, especially collaborative board, in study abroad education, frequently arranging board game nights or other relevant board game interactions on campus to connect international students from a variety of linguistic and cultural backgrounds, and designing board game materials based on findings of the present study and other relevant studies.

In conclusion, by investigating the differences in L2 speakers' perceived basic psychological need satisfaction and task engagement as manifested in two types of board games, in L2 speakers' perception of characteristics of two types of board games for fulfilling their psychological needs, and in factors affecting their engagement with the board game interactions beyond classroom, this study has deepened our understanding of the kind and characteristics of

board games that can better promote L2 speakers' engagement in the out-of-class learning context. It is hoped that this study can inspire future work in this area.

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Appendix A

Background questionnaire

Participant code:_____

- **Part one: Background Information**

1. University: _____ Major: _____
2. What year are you in? _____
3. Email Address: _____
4. Age: _____
5. How would you describe your gender? _____ Male _____Female _____Prefer not to say
6. Birthplace: _____ (City) _____(Country)
7. English Proficiency test(s) you have taken and your scores:

   □**TOEFL**
   total score: _____ Reading: _____Listening: _____Speaking: _____
   Writing: _____. Test date (mm/dd/yyyy): _____
   □**IELTS**
   total score: _____ Reading: _____Listening: _____Speaking: _____
   Writing: _____. Test date (mm/dd/yyyy): _____
   □**Other. Please specify**: _____
   total score: _____ Reading: _____Listening: _____Speaking: _____
   Writing: _____. Test date (mm/dd/yyyy): _____
8. How long have you lived/studied in an English-speaking country (if yes)?

   _____

9. What languages do you speak fluently and understand without effort?

   You can write more than one language with the order from the most fluent to the less.

- **Part two: Current English Exposure**

1. How many hours per week (if any) do you study in English? How?

   _____

2. Do you have regular English interaction with friends or colleagues who are nonnative speakers of English? Yes No (Circle one)
3. Do you have regular interaction with friends or colleagues who are native speakers of English? Yes No (Circle one)

4. Approximately how many hours per week do you watch or listen to English media/radio/television? Please explain.

- **Part three: Self-Evaluation of English Proficiency**

1. On a scale from 1-5, how would you rate your English in terms of

(with 1 being "very foreign" and 5 being "like a native English speaker")

	1	2	3	4	5
a. General proficiency (including reading, writing, listening, & speaking)					
b. Pronunciation					
c. Grammar					
d. Speaking					
e. Writing					
f. Reading					
g. Listening					

- **Part four: Exposure to and experience of playing board games**

1. Have you ever played *non-digital* board games? Yes No
2. If so, how many times have you played board games (both out of class and in class) before? approximately _____ times
3. Where did you play the board games? Please circle the answer(s) that apply.
   A. At school
   B. At home
   C. At board game shop/bar
   D. At a friend's house
   E. Neither
4. Do you like playing non-digital board game?
   A.Yes
   B. No
   C. So so
   D. I don't know

5. What kind(s) of board game do you like?

A. Competitive board game (players compete against one another)
B. Collaborative board game (players collaborate with one another to achieve a common goal)
C. Both
D. I do not know

6. Did you have any experience of playing the same board games that will be used in this research study? Please circle your answer.
   A. Camel up
   B. Mysterium
   C. Both
   D. Neither

Appendix B

Post-game questionnaire

The following are 21 questions that ask your engagement with the board game you just played. Please consider **your overall experience of playing the board game.** That is, please reflect on your engagement **during the entire board game session.** Please be sure to answer each statement. There is no right or wrong answer.

Task engagement		Strongly disagree									Strongly agree
1	I felt that the board game was enjoyable to play.	1	2	3	4	5	6	7	8	9	10
2	I felt excited while I was playing the board game.	1	2	3	4	5	6	7	8	9	10
3	I felt satisfied while I was playing the board game.	1	2	3	4	5	6	7	8	9	10
4	I felt interested while I was playing the board game.	1	2	3	4	5	6	7	8	9	10
5	I felt discouraged while I was playing the board game.	1	2	3	4	5	6	7	8	9	10
6	I felt that the board game was tedious* (too long, slow, and dull).	1	2	3	4	5	6	7	8	9	10
7	I felt bored while I was playing the board game.	1	2	3	4	5	6	7	8	9	10
8	I collaborated with other players during the interaction.	1	2	3	4	5	6	7	8	9	10
9	I felt other players collaborated with me during the interaction.	1	2	3	4	5	6	7	8	9	10
10	I responded to other players' opinions or actions during the interaction.	1	2	3	4	5	6	7	8	9	10
11	I felt other players responded to my opinions or actions during the interaction.	1	2	3	4	5	6	7	8	9	10
12	I helped other player(s) during the board game interaction.	1	2	3	4	5	6	7	8	9	10
13	The other player(s) helped me during the board game interaction.	1	2	3	4	5	6	7	8	9	10

14	I responded to other players' requests for help.	1	2	3	4	5	6	7	8	9	10
15	The other players responded to my requests for help.	1	2	3	4	5	6	7	8	9	10
16	I thought hard to contribute ideas to play the board game.	1	2	3	4	5	6	7	8	9	10
17	I thought hard about other players' contributing opinions/ideas during the interaction.	1	2	3	4	5	6	7	8	9	10
18	I always justified my actions/opinions during the interaction.	1	2	3	4	5	6	7	8	9	10
19	I provided lots of ideas to contribute to the game.	1	2	3	4	5	6	7	8	9	10

Appendix C

Factors affecting your engagement questionnaire

Were you engaged with playing the board games? What made you feel engaged or disengaged? Why? Are there any academic, school, peer players of board game(s), board game design, interaction, interest, or your own factors that influenced your engagement? If so, please provide a brief explanation for each influencing factor that you believe is important to engage you in the board gameplay.

Appendix D

Psychological needs satisfaction questionnaire

The following are nine questions that ask your perception of the board game you just played. Please consider **your overall experience of playing the board game.** Please be sure to answer each statement. There is no right or wrong answer.

Closed-ended questions:

Items	strongly disagree strongly agree				
1. I felt that I could choose what I wanted to do during the board game.	1	2	3	4	5
2. I was able to freely decide my own progress during the board game.	1	2	3	4	5
3. I felt I was making progress for myself.	1	2	3	4	5
4. I felt good working with other players.	1	2	3	4	5
5. I felt I was working together with other players.	1	2	3	4	5
6. I felt closer/connected to other players.	1	2	3	4	5
7. I felt confident in interacting with other players in English.	1	2	3	4	5
8. I communicated effectively in English.	1	2	3	4	5
9. I am competent enough to meet challenges when playing board games in the future.	1	2	3	4	5

Open-ended questions:

1. Do you feel that you contributed to the game, connected with others, and were respected by other players? Why? Can you give an example of something that happened during the game that made you feel like this?

2. Do you feel that you had choices about how to play the game? Can you give an example of something that happened during the game that made you feel like this?

3. Do you feel that you accomplished something or felt competent while playing the game? Can you give an example of something that happened during the game that made you feel like this?

Appendix E

Focus group interview questions

1. How did you feel about playing the two games? Did you like one game more than the other? Why?
2. While you were playing the two games, did you set any goals or have any expectations? Did they differ for the two games?
3. Did you accomplish your goals and meet your expectations? What helped or hindered your ability to do that?
4. How engaged were you in the two games? What helped/hindered your engagement in them?
5. How smooth was communication with your group members? What helped/hindered communication?
6. How well did your group collaborate? What helped/hindered collaboration?
7. Did you face any challenges or difficulties while you were playing the games? What did you do?
8. Did you have any trouble figuring out how to play the game?
9. How connected to the other players and respected by them did you feel while playing the two games?
10. How well could you make choices about how to play the two games?
11. How competent or successful did you feel while playing the two games?

Appendix F

Consent form

INFORMATION AND CONSENT FORM

Study Title: Comparing second language English speakers' engagement with and perception of collaborative and competitive board games from self-determination theory and activity theory perspectives

Researcher: Tzu-Hua Chen

Researcher's Contact Information: tzu-hua.chen@mail.concordia.ca

Faculty Supervisor: Prof. Kim McDonough

Faculty Supervisor's Contact Information: Kim.McDonough@concordia.ca

Source of funding for the study: FRQSC Doctoral Research Scholarship

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to find out what types of board games promote international students' motivation and engagement with other students during out-of-class activities.

B. PROCEDURES

If you participate, you will be asked to play two board games, each of which takes around 50 minutes to play. Before the board game interaction, the researcher will play a YouTube tutorial and answer your questions about the rules of each game. After each board game play, you will be asked to fill out questionnaires on your engagement and perception of the board game play.

In total, participating in this study will take around 2.5 hours to play including a 10-minute break between games.

As a research participant, your responsibilities would be: play two board games and fill out questionnaire. For a small group of participants, you will be invited for a group interview (20 to 35 minutes) straight after playing the two board games depending on your willingness and availability

_____ (Please tick). I am willing to be interviewed at the end of today's session. If I agree, I will receive an additional 15 CAD.

C. RISKS AND BENEFITS

You might face certain risks by participating in this research. These risks include:

1. Nervousness (for those who are not used to talk to strangers or meet people from different cultural background)
2. Fatigue

You might personally benefit from participating in this research. Potential benefits include:

1. Practice English conversation with other students
2. Meet new friends
3. Relax yourself through board game interactions

D. CONFIDENTIALITY

We will gather the following information as part of this research: your responses to the background information form, your interaction data (video and audio recording), and your questionnaire responses. We will not allow anyone to access the information, except people directly involved in conducting the research, including faculty supervisor and coders of the interaction data.

By participating, you agree to let the researchers have access to information about your educational and linguistic background. This information will be obtained from data collected from you after each board game.

We will not allow anyone to access the information, except people directly involved in conducting the research, and except as described in this form. We will only use the information for the purposes of the research described in this form.

To verify that the research is being conducted properly, regulatory authorities might examine the information gathered. By participating, you agree to let these authorities have access to the information.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name.

We will protect the information by keeping all electronic copies of your data in password-protected electronic drives. We intend to publish the results of the research. However, it will not be possible to identify you in the published results. **The coded electronic files (i.e., without your name) may be used for secondary data analysis.** We will destroy the information 10 years after the end of the study.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

We will destroy the information ten years after the end of the study.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher within one month after you participate in this study.

As a compensatory indemnity for participating in this research, you will receive 65 CAD in cash. If you are invited to participate in a group interview following the board game interactions, you will get 80 CAD in cash. If you withdraw before the end of the research, you will receive 25 CAD/hour. For example, if you choose to withdraw after 30 minutes, you will receive 13 CAD. To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

We will tell you if we learn of anything that could affect your decision to stay in the research.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia

INFORMATION AND CONSENT FORM

Study Title: Comparing second language English speakers' engagement with and perception of collaborative and competitive board games from self-determination theory and activity theory perspectives

Researcher: Tzu-Hua Chen

Researcher's Contact Information: tzu-hua.chen@mail.concordia.ca

Faculty Supervisor: Prof. Kim McDonough

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Source of funding for the study: FRQSC Doctoral Research Scholarship

You are being invited to participate in the research study mentioned above. This form provides information about what participating would mean. Please read it carefully before deciding if you want to participate or not. If there is anything you do not understand, or if you want more information, please ask the researcher.

A. PURPOSE

The purpose of the research is to find out what types of board games promote international students' motivation and engagement with other students during out-of-class activities.

B. PROCEDURES

If you participate in a focus group interview following the game board interaction, you will be interviewed with your group members. The focus group interview will take about 30 minutes.

C. RISKS AND BENEFITS

You might face certain risks by participating in this research. These risks include:

Nervousness (for those who are not used to talk to strangers or meet people from different cultural background)

Fatigue

You might personally benefit from participating in this research. Potential benefits include:

Practice English conversation with other students

Meet new friends

D. CONFIDENTIALITY

We will gather the following information as part of this research: your oral responses to interview questions. We will not allow anyone to access the information, except people directly involved in conducting the research, including faculty supervisor and coders of the interaction data.

By participating, you agree to let the researchers have access to information about your oral interview data. This information will be obtained from data collected from you after each board game.

We will not allow anyone to access the information, except people directly involved in conducting the research, and except as described in this form. We will only use the information for the purposes of the research described in this form.

By signing this form, you consent to respect each other's confidentiality and to not disclose anyone's identify outside of the group interview. Your identity will be known to other focus group participants and the researcher cannot guarantee that others in the group will respect your confidentiality. The researcher will not allow anyone to access the information, except people directly involved in conducting the research. This group interview will be audio-recorded.

To verify that the research is being conducted properly, regulatory authorities might examine the information gathered. By participating, you agree to let these authorities have access to the information.

The information gathered will be coded. That means that the information will be identified by a code. The researcher will have a list that links the code to your name.

We will protect the information by keeping all electronic copies of your data in password-protected electronic drives. We intend to publish the results of the research. However, it will not be possible to

identify you in the published results. **The coded electronic files (i.e., without your name) may be used for secondary data analysis.** We will destroy the information 10 years after the end of the study.

We intend to publish the results of the research. However, it will not be possible to identify you in the published results.

We will destroy the information ten years after the end of the study.

F. CONDITIONS OF PARTICIPATION

You do not have to participate in this research. It is purely your decision. If you do participate, you can stop at any time. You can also ask that the information you provided not be used, and your choice will be respected. If you decide that you don't want us to use your information, you must tell the researcher within one month after you participate in this study. However, please note that while attempts will be made to withdraw data if requested, given the nature of focus group discussions, it will be impossible to withdraw all contributions.

As a compensatory indemnity for participating in this research, you will receive 15 CAD in cash. If you withdraw before the end of the research, you will receive 25 CAD/hour. For example, if you choose to withdraw after 15 minutes, you will receive 7 CAD. To make sure that research money is being spent properly, auditors from Concordia or outside will have access to a coded list of participants. It will not be possible to identify you from this list.

We will tell you if we learn of anything that could affect your decision to stay in the research.

There are no negative consequences for not participating, stopping in the middle, or asking us not to use your information.

G. PARTICIPANT'S DECLARATION

I have read and understood this form. I have had the chance to ask questions and any questions have been answered. I agree to participate in this research under the conditions described.

NAME (please print) _____

SIGNATURE _____

DATE _____

If you have questions about the scientific or scholarly aspects of this research, please contact the researcher. Their contact information is on page 1. You may also contact their faculty supervisor.

If you have concerns about ethical issues in this research, please contact the Manager, Research Ethics, Concordia University, 514.848.2424 ex. 7481 or oor.ethics@concordia

Appendix G

Transcription conventions

(adapted from Allwright and Bailey, 1991)

/---/	unintelligible speech
% %	simultaneous speech/overlap between speakers
…	unfilled pause (1 second +)
Uh	filled pause
- -	interrupted speech
—	self-repair
[ ]	commentary of any kind