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Personality-based intercultural awareness in undergraduate translation students via postcrossing

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ABSTRACT

The study examines the necessity of a sustainable research network for transformative education, focusing on the Postcrossing phenomenon to analyze cross-cultural dynamics through authentic postcards. A mixed-methods approach was used, including a Postcrossing postcard-based questionnaire and personality assessment. The results highlight a significant relationship between personality types and intercultural interpretation skills, particularly among iNtuitive Thinking and iNtuitive Feeling types. This research demonstrates the potential of utilizing Postcrossing in translation studies and educational psychology to promote personality-based intercultural awareness.

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Introduction

Intercultural awareness is a quality that enables people to achieve a multicultural mindset (Wang et al., 2021). It is crucial for future translators and interpreters, who are expected to participate in negotiations, presentations, analyses, and resolutions with representatives of other cultures (Moneus, 2022; Shepherd, 2019). Intercultural awareness can be demonstrated in knowledge, feelings, attitudes, and behaviors that one consciously experiences, recognizes, and reflects in any real or potential intercultural interactions (Wang et al., 2021).

From a psychological viewpoint, intercultural awareness includes three perspectives: affective, behavioral, and cognitive (Wang et al., 2021). The affective perspective refers to the emotional reactions and feelings that one experiences when interacting with people from different cultures. The behavioral perspective refers to the actions and strategies that one adopts to communicate effectively and appropriately with people from different cultures. The cognitive perspective refers to the mental processes and structures that one uses to understand and interpret people from different cultures.

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One of the cognitive frameworks that can be used to analyze intercultural awareness is the Jungian personality type theory, which is based on the work of Swiss psychiatrist Carl Jung (1875–1961). Jung proposed that there are four main psychological functions that people use to perceive and judge the world: Thinking, Sensation, iNtuition, and Feeling (Francis et al., 2020). He also suggested that there are two opposite attitudes that determine the direction of one's energy: Extraversion and Introversion (Balenci, 2020). By combining these functions and attitudes, Jung identified eight basic personality types, which he later expanded to 16 by adding another dimension of Perceiving and Judging (Spoto, 2021).

According to Jung, each personality type has its own strengths and weaknesses, preferences and motivations, and ways of relating to others and to oneself. Jung believed that these types are innate and universal and that they reflect the collective unconscious, which is a layer of the psyche that contains the shared memories and archetypes of the human species (Goodwyn, 2020). Jung's theory of personality types has been widely used in various fields, such as psychology, education, counseling, management, and art, to understand human behavior and diversity.

However, some researchers have disputed Jung's theory, arguing that personality types are dynamic and context-dependent rather than fixed and stable (Dweck, 2006; Zhang, 2021). Additionally, some studies have suggested that personality types are not culture-specific but rather universal as a result of influences from both biological and environmental factors (Church, 2016; Zhang, 2021). Therefore, personality types can be seen as a common language that can facilitate intercultural communication and understanding, rather than a barrier that separates people from different cultures.

We are interested in how undergraduate translation students process and think about culturally-based images on Postcrossing postcards. Our study focuses on the cognitive side of intercultural awareness. We argue that visual culture-based elements such as pictures or postcards can stimulate critical thinking and reflection on different cultural values, beliefs, and practices (Herrero & Vanderschelden, 2019; Yilmaz et al., 2019). We also hypothesize that the Jungian personality types of the students may influence their perception and interpretation of the images, as well as their intercultural communication skills and attitudes. Therefore, we aim to explore the relationship between the Jungian personality types and the intercultural awareness of the translation students in our sample.

Postcards, considered by various scholars as one of the multifaceted tools, can serve as a framework for tangible reflexive teaching practices (Gugganig & Schor, 2020) and can be gained through Postcrossing (Purwaningrum & Yusuf, 2019), the international project established on July 14, 2005, by Paulo Magalhaes and Ana Campos and equipped with a built-in counter of received and sent postcards. This project granted a postcard a second chance as a means of both traditional and digital communication and turned it into an object of great potential regarding intercultural awareness and critical thinking development (Wissner, 2022).

In the context of Kazakhstan, the phenomenon of Postcrossing is hardly ever noted; only one mention of the Postcrossing international lottery as a means to popularize the native country in English was found (Kalizhanova et al., 2022, pp. 201–202). To go deeper, 49 participants from 19 countries in the world tried to give a detailed answer to the question 'What do you know about Kazakhstan's ancient flora and fauna?' to win the main prize: an author's postcard of the corresponding subject. The popularity of that postcard among the lottery participants was beyond doubt: people from different countries googled the information on the lottery topic or promised to do it in order to be recognized as the winner.

So, it was suggested that Postcrossing postcards with different cultural elements could help Kazakhstani undergraduate translation students become more culturally aware. These students have trouble participating in international exchange and mobility programs because (1) the COVID-19 pandemic has made it harder for countries to work together in science and education (Zainiyeva & Abzhapparova, 2022); (2) they can not afford to (Collen, 2020); or (3) they do not know much about the country (Rustemova, 2020) but are desperate for a better understanding of the complex dynamics of cross-cultural awareness as a component of translation competence worldwide (Acioly-Regnier et al., 2015, p. 142).

This study is going to reveal the multiple functions of Postcrossing to be applied in different spheres of contemporary cultural studies through a thorough literature review analysis. We will then use a

mixed-method approach that includes a personality test and a questionnaire based on Postcrossing postcards to find out (1) what personality types undergraduate translation students who use Postcrossing as a learning tool show; (2) how personality types affect the development of intercultural awareness among undergraduate translation students who use Postcrossing as a learning tool; and (3) how personality types influence the process of selecting and interpreting culture-based images on Postcrossing postcards. By the conclusion of the paper, readers will have empirical knowledge regarding the intersection between the investigation of personality traits and intercultural awareness within the domain of language instruction. The projected results are predicted to have ramifications that will extend to both academic discourse and educational practices within the realm of cultural studies.

Research aims and significance

The objective of this study is to investigate the potential of Postcrossing to enhance the development of intercultural awareness among undergraduate translation students. Specifically, this study considers the personality types of individuals and their impact on intercultural communication abilities.

The cognitive ability of intercultural awareness encompasses the comprehension and recognition of diverse cultural values, beliefs, and practices (Wang et al., 2021). Translators' personality-based intellectual styles, which refer to their individual preferences for information processing and problem-solving, have the potential to impact this particular talent (Zhang, 2021). The aforementioned styles possess a core universality, albeit with potential variations observed among different cultural contexts.

To date, there has been a lack of research conducted in the field of intercultural communication within the Republic of Kazakhstan. This is particularly relevant given the increasing interest among undergraduate translation students in acquiring knowledge of the Chinese language and culture (Kembayev, 2020).

Hence, the primary objective of this study is to ascertain the correlations between various personality types and intercultural awareness within the population of undergraduate translation students who utilize Postcrossing as a learning instrument. By implementing this approach, educators can enhance their ability to develop pedagogical strategies that are both efficient and tailored to the individual requirements and aptitudes of their students.

Formulating the following research questions furthers the study's objective:

- RQ 1: What are the personality types exhibited by undergraduate translation students who utilize Postcrossing as a learning tool?
- RQ 2: To what extent do personality types impact the development of intercultural awareness among undergraduate translation students utilizing Postcrossing as a learning tool?
- RQ 3: To what extent do personality types influence the process of selecting and interpreting culture-based images on Postcrossing postcards?

Literature review

Postcrossing as a phenomenon to be researched

Postcrossing itself and the postcards obtained via this tool, in particular, are a rich and interesting phenomenon with numerous applications (Lestiana, 2018). Postcrossing has also been seen as a way to rethink and partly recreate the tradition of exchanging postcards (Papadaki, 2019). It has also been seen as a way to help students learn a second language (Florea, 2011), improve their reading and writing (Cizková, 2014), facilitate language learning (Liu, 2018), solve communication problems (Suvorova et al., 2020), encourage independent language learning (Purwaningrum & Yusuf, 2019), and enhance teacher-student digital interaction (Krotovskaya and Borisova, 2022).

Postcrossing potential was noted in developing communicative relations with English-speaking people (Otchik & Lazaniuk, 2021), including using networking websites for exchanging postcards (Zeng, 2018, p. 123). Postcrossing postcards, in particular, not only carry cultural, artistic, and historical information (Rava,

1998, p. 58) but also open the door to understanding cultural aspects of any country, as they refer to cultural beliefs (Pritchard & Morgan, 2005) and allow students to explore culture through wordless narratives mediated by images related to cultural representations (Maine & McCaughran, 2021). By analyzing postcards gained through Postcrossing, students can facilitate communication, understanding, and guidance (Gugganig & Schor, 2020) as well as develop analysis and critical thinking skills, gathering, evaluating, and synthesizing information to understand the cultural and historical context (Foundation for Critical Thinking, 2019; Murray, 2015).

In all, Postcrossing postcards can be considered an instrument of cultural power, engaging undergraduate translation students with their cultural heritage (McAra, 2021), and a source of intercultural exchanges, visually helping to experience cultural diversity (Yibing, 2021). For example, we can try to find the link between undergraduate translation students' personality types and some cultural cues displayed in Postcrossing postcards, as Cooper et al. (2020) demonstrated that 'personality is connected to human- and machine-detected situational cues', characteristics, classes, behavior, and affect displayed in Instagram photos. We can also try to identify whether the personality types of future translators can become the reason why people choose a particular postcard for intercultural exchange, thereby enriching the research by Kelly & Gooch (2012), which revealed six key factors such as connecting, enjoyment, personalization, nostalgia, tangibility, and surprise that make people exchange the postcards. Last but not least, postcard design features undoubtedly influence the rise of Postcrossing phenomenon, and the research where Indonesian postcrossers gave preferences to classical Javanese temple-themed postcards (Andito, 2022) proved it. We can check if undergraduate translation students prefer particular cultural aspects, thus identifying cultural trends among youth in the Republic of Kazakhstan. Kazakhstan undergraduate translation students are becoming increasingly interested in learning one of the East Asian languages, such as the Chinese language and Chinese culture (Chunlei & Liyun, 2022), since in recent years, with the continuous deepening integration processes between China and Kazakhstan, economic and trade cooperation has become increasingly close (Kembayev, 2020). As a result, being aware of these preferences can assist educators in addressing any gaps in cultural understanding that may affect the proficiency and quality of undergraduate translation students.

Personality types in translation studies

An increasing number of studies have looked at how different facets of language learning and instruction relate to different personality types, and they show that these personality qualities can considerably predict academic success and failure (Ackerman, 1999; De Fruyt & Mervielde, 1996; Petrides et al., 2005). For now, there is one of the most popular and well-known tests to identify the type of personality, the Myers-Briggs Type Indicator (MBTI) test, created on the basis of Jung's typology of personality with dominant cognitive functions and four scales with polar values: (1) Extraversion vs. Introversion (E-I)—consciousness orientation; (2) Sensing vs. iNtuition (S-N)—situational awareness; Thinking vs. Feeling (T-F)—decision-making; Judging vs. Perceiving (J-P)—preparation of decisions (Gadalla et al., 2023). According to this typology, each person can be assigned to one of 16 types (The Myers & Briggs Foundation, n.d.). The names of type-code tests, like MBTI, are similar: the first letter tells you whether a person is Introverted (I) or Extraverted (E); the second letter tells you how they perceive information, whether they use Sensing (S) or iNtuition (N); the third letter tells you whether they make decisions based on Thinking (T) or Feeling (F); and the fourth letter tells you whether they are Irrational/Perceiving (P) or Rational/Judging (J) (Gordon & Jackson, 2019). Simply put, ENTP means Extraverted-iNtuitive e-Thinking-Perceiving.

This test is widely used in many fields, including psychology, human resources, and translation studies (Furnham, 2020). In terms of translating activity, the studies, which involved the Myers-Briggs typology, found that translators with iNtuitive Thinking types (NT) outperformed their peers at (1) interpreting and expressing creative ideas (Nicholson, 2005, p. 118; Wehrmeyer & Antunes, 2020); (2) translating technical texts (Karimnia & Mahjubi, 2013, p. 41; Shaki & Khoshsaligheh, 2017, p. 127); and (3) being successful at work (Al-Ismael, 2022, p. 847; SITNIC, 2018, p. 371). In terms of translators' intercultural awareness, two controversial studies were found, where the Myers-Briggs Type Indicator (MBTI) was chosen to test future translators' personalities (Gevaert, 2020; Pandiangan, 2020). One of them said that the ESTJ personality

type, which stands for Extraverted-Sensing-Thinking-Judging, did not do well at finding the right balance between "foreignization" and "domestication" in translation, while the ESFP personality type (Extraverted-Sensing-Feeling-Perceiving) did a good job of shaping translation ideology (Pandiangan, 2020, p. 26). Another study claimed that the Sensing translator students outperformed the iNtuitive ones for the analytical and holistic assessment of the translation quality of a literary text translated from English into Dutch (Gevaert, 2020).

As a literature review indicates, people from the same culture are said to have personalities that are unique to those of people from different cultures. However, by assuming that people only use one or the other of their cognitive processes and by proposing a binary divide between thinkers and feelers, or judges and perceivers, the Jungian/Myers-Briggs paradigm has drawn criticism (Canossa et al., 2016, p. 49). Myers-Briggs' idea claims that everyone has access to every cognitive function, albeit in a different order depending on their preferences (Canossa et al., 2016, p. 49). Berens and Nardi (2004, p. 2) offer a Jungian alternative explanation for these choices based on energy consumption. According to Jungian theory, personality functions—not traits—explain how people perceive the world and what drives them (Nardi, 2011). For completeness, the eight cognitive functions are: Extraverted Thinking (Te), Introverted Thinking (Ti), Extraverted Feeling (Fe), Introverted Feeling (Fi), Extraverted Sensing (Se), Introverted Sensing (Si), Extraverted iNtuition (Ne), and Introverted iNtuition (Ni) (Berens & Nardi, 2004; Gordon & Jackson, 2019, p. 624; Mascarenas, 2016, p. 49; Nardi, 2021).

So, in this context, we decided to use the free-of-charge 48-question Cognitive Processes Assessment (CPA) test (Gordon & Jackson, 2019, p. 628; Nardi, 2021) since it represents the alternative idea, asserting that psychological types may be observed in civilizations, cultures, and nationalities as well as people (Zhang, 2021), thereby helping to dispel ethnic stereotypes and prejudices.

Since the translation sphere's concern always involves cognition and culture (Shadman et al., 2022), the most interesting research question here is the connection between cultural awareness and personality types of translator-students in educational contexts and reform in Kazakhstan. It would be interesting to see whether undergraduate translation students with iNtuitive Thinking types do better at analyzing cultural information depicted on Postcrossing postcards or whether their iNtuitive Thinking types help them guess the countries of origin.

Research methodology

Design

This study is an example of a mixed-method technique to collect data that combines qualitative content analysis and quantitative methodologies in a single study. We used an interpretive lens (Yin, 2018), which necessitates reflection. We looked at the students' answers to a postcard-based questionnaire and worksheets created to describe postcards to examine personality-based intercultural awareness among 65 undergraduate translation students at Buketov Karaganda University in the Republic of Kazakhstan. The research elaborated on a literature review that examined translators' personality types' impact on their intercultural awareness in line with Jungian/Myers-Brigg's paradigm. As a statistical procedure (Tan et al., 2004), such measures of association as Yule's and Pearson's coefficients were used to provide us with understanding and interpreting the relationships by summarizing the data into categories, contingencies, or associations (Bonett & Price, 2007; McCrum-Gardner, 2008). The statistical procedure was done using the Statistics Resource Pack in Excel to do reliability data analysis.

Sample

Participants

A total of 65 student-translators from Buketov University's second and third years took part in the study (convenience sample), covering a range of cultural backgrounds and Postcrossing skill levels. 33 participants were native Kazakhs, and 32 participants were of Russian nationality. They were between the ages of 18 and 20. Due to their English language skills and enrollment in a course that might be used in

combination with the research techniques, these students were chosen. This study's basic premise is that second- and third-year students have adequate English proficiency (upper-intermediate and advanced levels) to articulate their thoughts and opinions intelligibly.

Postcrossing postcards

A sample of 12 postcards from various countries was used to gain insight into cultural and historical context (Table 1).

We deliberately selected 12 genuine postcards with no names of countries or entities on the front to stimulate our students' prior knowledge and encourage them to engage in content and semiotic analysis. The postcards were chosen at random from the collection we have through the postcrossing activity. The selection of postcards with depictions of visible cultural elements and lacking nation or entity names was used as a tool to engage students in critical thinking and visual analysis (Kelly & Kortegast, 2023) since it prepares students for actual challenges in disciplines such as translation and interpretation.

Content analysis can help identify objects depicted in the images, while semiotic analysis allows for the interpretation of both denotative and connotative signs. Denotative signs are easily recognizable objects, while connotative signs carry deeper meanings, such as the association of Japanese carp with Asian culture or big American cars with freedom, which support a culture's core beliefs and values.

Table 1. Postcards from different countries.

		
Canada Preening Owl by Kenojuak Ashevak	China Gentle Girl and Dragon in Shan Hai Jing	Italy Brando, Mosaici: Oggetti d'arte un Pavimenti alla Veneziani
		
Finland Inge Look, Old ladies	India Waste to Wonder Park, Delhi	The USA Wigwam Motel, Holbrook, Arizona
		
Republic of Kazakhstan The old building of Central Post Office in Karaganda	Poland Polish Fiat 126	Portugal Pyrenean donkey
		
Sweden Petson and his cat Findus by Sven Nordqvist	Switzerland Frohe Weihnachten, Merry Christmas	United Kingdom Cam River During Autumn by Romain Chassagne

The design aspects on the postcards we received represented the cultural quirks of the many nations, and asking 'where is the postcard from?' provided us with insights into the underlying thinking behind the design and production decisions. The selection and design of a postcard were considered based on the information taken from its front side that was related to cultural values and unique characteristics of the country. The 'Dear Data Project' (Sorapure & Fauni, 2020) was the inspiration for the postcard design. However, instead of using personal information, the 'Dear Data Project' uses the cultural traits and attributes of the nation to provide cultural details about a certain nation (Gerritsen et al., 2016). In order to encourage participants to learn about the specific culture and be a part of the design process, we also used the traditional handicraft postcard drawing method as an accompaniment to contemporary digital (Canva) and interactive media technology, such as AR postcard design (Ding, 2022; Zhou et al., 2020).

Measures: the cognitive Processes Assessment (CPA)

The Cognitive Processes Assessment (CPA) is based on the Jungian concept of persona with dominant cognitive functions and Myers-Briggs' typology (Nardi, 2021). CPA consists of 48 statements, each of which is rated by a respondent on that 5-point Likert scale and ended up having a Cronbach alpha of 0.70 or higher thereby statistically validated on 130,000 persons since deployed in 2006 (Gordon & Jackson, 2019, p. 628; Nardi, 2021).

Data collection

During a four-week period, a total of 65 students analyzed 12 postcards from various countries were chosen to gain insight into cultural and historical context. The students then used their postcard interpretations as the basis for intercultural communication and teaching English as a Foreign Language (EFL). To encourage the students to develop arguments and reasoning skills, a worksheet similar to the Primary Source Analysis Tool was provided, which included three sections: Observe, Reflect, and Questions (Teacher's Guides and Analysis Tool, 2021). In the Observe section, students identified and noted details of the postcard, while in the Reflect section; they generated hypotheses about the postcard. The Questions section encouraged students to ask additional questions and investigate further. The postcard exercise allowed the students to activate their cultural background knowledge and engage in active group discussion. After analyzing the postcards and taking notes, the students asked each other specific questions to expand their knowledge. To evaluate the effectiveness of this activity, educators collected completed worksheets from each student and analyzed their full answers. They also compared the outcomes with the students' cognitive personality types to determine whether personality traits influenced their ability to identify, interpret, and justify information. A questionnaire was also used to assess the students' ability to analyze cultural images and symbols on the postcards and think critically to recognize and identify a country, focusing on places, people, symbols, cars, artifacts, architectural features, and landscapes associated with the culture of the country.

Data analyses

To answer the first research question (RQ1), the Cognitive Processes Assessment (CPA) test was used to measure the degree of Extraversion vs. Introversion/Sensing vs. iNtuitive/Thinking vs. Feeling/Judging vs. Perceiving types.

To answer the second research question (RQ2), we calculated the data and used a chi-square (χ^2) distribution to fix a valid difference in students' choice.

To answer the third research question (RQ3), we used content analysis to analyze written notes and responses to the postcard-based questionnaire (Gheyle & Jacobs, 2017), and then used the Yule's Coefficient of association and Pearson's contingency coefficient to persuade the reader of the view correctness by measuring data.

Ethics

Ethical clearance was obtained from the Research Ethics Committee of Buketov University. Participants from this research were agreed to attend voluntarily. They were informed that their answers would be analyzed.

Results and discussion

RQ1. What are the personality types exhibited by undergraduate translation students who utilize Postcrossing as a learning tool?

The cognitive personality measure categorized respondents into following categories in each four dimensions: Introvert vs. Extravert, Sensing vs. iNtuiting, Thinking vs. Feeling, and Judging vs. Perceiving. The total number of participants was 65, as presented in Table 2.

From Table 2, it is evident that this sample of respondents is mostly extraverts. 53.8% of respondents are extraverts, while 46.1% are introverts. 63% of the respondents has iNtuitive type, namely, iNtuitive Thinking (NT = 41.5%) and iNtuitive Feeling (NF = 21.5%) types, followed by 36.9% of Sensing type respondents, namely, Sensing Judging (SJ = 16.8%) and Sensing Perceiving (SP = 20.5%) types.

Such findings prove the studies, according to which iNtuitiveThinking types of personality dominate among translators and interpreters (Karimnia & Mahjubi, 2013, p. 41; SITNIC, 2018, p. 371) but disprove the predominance of Sensing types in translation as it was in the research carried out by Pandiangan (2020, p. 26). It demonstrates not only that iNtuitive Thinking types among translators and interpreters who are more self-reliant in their translation produce better quality translations (Lehka-Paul & Whyatt, 2016), but it also supports the idea that personality types play a role in translators' improvisational correct decision-making style (Vera et al., 2024) by following their internal logic.

RQ2. To what extent do personality types impact the development of intercultural awareness among undergraduate translation students utilizing Postcrossing as a learning tool?

The next phase of the research was to identify the significance of the respondents' preference of postcards, which were analyzed. We used a chi-square (χ^2) distribution to fix a valid difference in preferences. The decision rule for the χ^2 distribution depends on the level of significance and the degrees of freedom (Table 3).

The findings indicate that an observed frequency distribution (only iNtuitive Thinking types - $\chi^2 = 48.5$) differs from a theoretical distribution, and exceeds the critical value of $\chi^2 = 19.68$ ($p < 0.05$). These results show a significant difference in iNtuitive Thinking type of translators' postcards preferences.

Such a result can extend the study by Andito (2022) that tries to explain the rise of Postcrossing phenomena by collecting specific postcards related to culture. We can definitely say that Chinese and Japanese culture has gained popularity worldwide and Kazakhstan was not an exception (Yamamura, 2014). Many Kazakhstani students are motivated to learn Japanese because of their interest in Japanese animation (Calafato, 2021). Also, Kazakhstan young people are increasingly enthusiastic and eager to

Table 2. Results of CPA.

	Sensing Types 24 (36.9%)		iNtuitive Types 41 (63%)		Total
	Sensing-Judging	Sensing-Perceiving	iNtuitive-Feeling	iNtuitive-Thinking	
Introvert	ISTJ	ISTP	INFJ	INTJ	10 (15.3%)
30 (46.1%)	4 (6.1%)	3 (4.6%)	0 (0%)	6 (9.2%)	
	ISFJ	ISFP	INFP	INTP	20 (30.7%)
	0 (0%)	5 (7.6%)	6 (9.2%)	6 (9.2%)	
Extravert	ESTJ	ESTP	ENFP	ENTP	16 (24.6%)
35 (53.8%)	4 (6.1%)	2 (3.7%)	5 (7.6%)	6 (9.2%)	
	ESFJ	ESFP	ENFJ	ENTJ	19 (29.2%)
	3 (4.6%)	3 (4.6%)	3 (4.6%)	9 (13.8%)	
Total	11 (16.8%)	13 (20.5%)	14 (21.5%)	27 (41.5%)	65

Table 3. Respondents' preference of the country.

Degrees of freedom	Country	iNtuitive-Thinking INTJ, INTP, ENTJ, ENTP	Sensing-Judging ISTJ, ISFJ, ESTJ, ESFJ	iNtuitive-Feeling INFJ, INFP, ENFJ, ENFP	Sensing-Perceiving ISTP, ISFP, ESTP, ESFP
1	Canada	1	1	0	1
2	China	15	3	8	2
3	Finland	1	1	1	1
4	India	2	0	0	1
5	Italy	2	0	0	0
6	Kazakhstan	0	2	0	0
7	Poland	2	1	1	0
8	Portugal	1	1	0	0
9	Sweden	0	0	1	4
10	Switzerland	1	1	0	1
11	UK	1	0	1	1
12	USA	0	0	1	1
$\chi^2=19.68$ ($p<0.05$)	<i>Probability of a larger value of χ^2</i>	$\chi^2= 48.5$	$\chi^2= 0.83$	$\chi^2= 16.33$	$\chi^2= - 0.44$

Table 4. Kazakh and Russian speaking respondents' preference of the country.

Degrees of freedom	Country	Kazakh speaking students	Russian speaking students
1	Canada	2	1
2	China	15	13
3	Finland	2	2
4	India	1	2
5	Italy	1	1
6	Kazakhstan	1	1
7	Poland	3	1
8	Portugal	1	1
9	Sweden	3	2
10	Switzerland	2	1
11	UK	1	2
12	USA	1	1
$\chi^2=19.68$ ($p<0.05$)	<i>Probability of a larger value of χ^2</i>	$\chi^2= 54$	$\chi^2= 47$

learn Chinese language and culture by watching Chinese movies and TV shows since the latter depict Chinese culture in a visual and popular way (Chunlei & Liyun, 2022).

We also checked if the choice of the Chinese postcard had depended on our iNtuitive Thinking students' ethnicity. The results are presented in the Table 4.

It is obvious that the most Kazakh and Russian speaking iNtuitive Thinking students chose the postcard from China. Calculations show a reliable difference in student preferences. The distribution of preferences among Kazakh and Russian speaking students ($\chi^2 = 54$ and $\chi^2 = 47$) is reliably different, and exceeds the critical value of $\chi^2=19.68$ ($p<0.05$).

Such a result proves the universal nature of psychological types according to Zhang (2021) and broadens the spectrum of possibilities for investigating people's motivation and preferences due to their cognitive functions.

In an attempt to understand why iNtuitive Thinking students chose the postcard from China, we designed eight cognitive profiles (Nardi, 2012; Stumpf & Dunbar, 1991) that involved the analysis of the undergraduate translation students' everyday language, referring to 'mental resources' rather than brain jargon, to be more accessible (Table 5).

The data collected in Table 5 not only justifies the credibility of Jungian cognitive functions' characteristics and features but also made us notice some interesting regularities or interconnections between the personality types of those who had chosen the postcard from China and the Chinese card's front's design. We noticed that ENTP with the dominant Extraverted iNtuition function (Ne) called a flying creature on the postcard 'a dragon' that can be explained that dragon possesses Extraverted personality type (Cai, 2021, p. 1059; Lyckberg, 2021). Also, Introverted iNtuitive Thinking types used some abstract notions to describe what they had seen on the postcard's front ('some kind of creature,' 'large flying entity,' and 'mysterious flying something') thereby justified the idea of iNtuitive Thinking as 'a sudden insight can occur in

Table 5. Student's scoring table.

Cognitive Function	Descriptor	Description Extract	Reason for Choice Extract	4-letter Type Code
Thinking (extraverted)	Measure and construct for progress	... a postcard with a dragon looking at... ... a picture with something like a mythical fish a picture of a girl and a dragona picture with a bird from fairy tale with many wingsa picture with the Japanese works of art , where the blonde girl plays the " shogi " with the spirit (Yokai) .	Because of brightness . Because I liked its color and the style of work . Because this picture is the most interesting , it has a beautiful drawing style and colors blend well . Because it is the most attractive and easy to see . Because I value meaningful and aesthetically beautiful things .	ENTJ
Thinking (introverted)	Gain leverage using a framework	... a picture with ... some kind of creature a postcard with a girl and a magic animalwith a large flying entity .	Because if life confronts you with dragons , sometimes it's better to make friends with them. Because this bird recalls a dragon and made me think of something magic . Because I find unique the drawing style and color spectrum .	INTP
iNtuiting (extraverted)	Explore the emerging patterns	... a picture with a mysterious colorful dragon a postcard where bright colors and interesting symbols are used to show a dragon .	Because dragons represent wisdom, power, and beauty . They are magic . Because I thought, perhaps , some kind of magic ritual could be taking place .	ENTP
iNtuiting (introverted)	Transform with a meta-perspective	I chose a picture with a fire bird ... I think the bird acts in the role of the galaxywith mysterious flying something . A postcard with girl and magic animal: fish or bird .	Because I saw deep thoughts . You can even go deep into your thoughts . Because I like how mysterious and beautiful it might be or was . Because I imagined how it might contain some mysterious fairy tail.	INTJ

the form of abstract idea' (Kamal & Radhakrishnan, 2019, p. 423; Suyundikova et al., 2021, p. 89; Vincent & Ross, 2001, p. 40). Finally, the description of the postcard design as 'shogi with the spirit (Yokai)...' made by one student of ENTJ (Extraverted-iNtuitive-Thinking-Judging) proved that Extraverted Thinking (Te) users rely on hard facts and multiple perspectives when providing their arguments (Mitroff, 2022).

RQ3. To what extent do personality types influence the process of selecting and interpreting culture-based images on Postcrossing postcards?

When the participants' cognitive personality types were determined, and the task to interpret the postcard was done, the Yule's Coefficient of association and Pearson's contingency coefficient was used to estimate the association between two underlying variables: cognitive personality functions and the student's ability to identify, interpret, and justify information on the postcard concerning country. The coefficients show whether two variables and data sets are independent or dependent of each other. Putting the known values in the 2x2 contingency table, the Yule's Coefficient of Association and Pearson's contingency coefficient was calculated and determined. The coefficients indicated direct relationship and a positive association between the attributes. The results presented in Tables 6–8.

Table 6 shows that there is a positive association between the attributes. The value of Yule's Coefficient of association ($Q=0.71$) is bigger than 0.5 and the value of the Pearson's contingency coefficient ($C=0.35$) is also bigger than 0.3, so the relationship between the studied features is considered confirmed.

The results presented in Table 7 also indicate that the relationship between two underlying variables is strong. The value of Yule's Coefficient of association ($Q=0.78>0.5$) and the value of the Pearson's Contingency Coefficient ($C=0.39>0.3$) indicate direct relationship (association) between the attributes.

The results shown above demonstrate that the iNtuitive types outperformed while using an Analyzing Primary Sources Tool because they can come up with ideas and share them with others (Jones & Francis,

Table 6. Results for example 1.

Four-letter Personality Type-Code	guessed the country	not guessed the country	total	Results
iNtuitive-Thinking (INTJ, INTP, ENTJ, ENTP)	16	12	28	Q=0.71
Sensing-Judging (ISTJ, ISFJ, ESTJ, ESFJ)	2	9	11	C=0.35
total	18	21	N=39	

Table 7. Results for example 2.

Four-letter Personality Type-Code	guessed the country	not guessed the country	total	Results
iNtuitive-Feeling (INFJ, INFP, ENFJ, ENFP)	6	8	8	Q=0.78
Sensing-Perceiving (ISTP, ISFP, ESTP, ESFP)	1	11	11	C=0.39
Total	7	19	N=26	

2019). The translator-student with highly developed Extraverted iNtuition (Ne), who had selected the Canadian postcard, in particular, defined the owl as 'a black bird with stamens' and supported his choice by pointing out 'the symbolism in this postcard' in the Observe section. This student came up with the origin theory for the postcard in the Reflect portion. His justification was as follows: '...from the USA, and to be more specific, from native Americans due to the art style, typical for them,' and the student made up for his lack of justification by answering questions like, 'Where else did native Americans live?' The iNtuitive student was able to identify Canada as a potential source country for the postcard due to his ability to communicate. The section on Further Research allows for the creation of a study plan for using the Internet to browse for solutions.

While the Sensing Thinking student described the owl as 'an owl' with 'a yellow item on its head' and 'red wings as a sign of freedom,' the Sensing student had chosen the same postcard. An astute student incorrectly identified India as the nation of origin for the postcard by associating the yellow hue with 'curcuma' but the red color with 'henna'. This Introverted Thinking (Ti) user, who struggles to get along with others, according to various studies (Nardi, 2012; Schultz & Schultz, 2016), did not use sections like Question or Further investigation thereby lowering the chances of guessing the facts.

Conclusion

The study demonstrated that the Postcrossing authentic postcards can be used as a learning tool to develop undergraduate translation students' cultural awareness by making the latter analyze the cultural information and speculate about the postcard's origin with the help of Analyzing Primary Source Tool. Also, the research has shed some light on the relationship between the cognitive personality types of undergraduate translation students and their critical thinking, revealing positive association between the attributes. The significant correlation between preferred country postcards and cognitive personality type was revealed.

According to the findings of the study, the future translation specialists with iNtuitive Thinking type of personality significantly outperform the peers with Sensing Thinking and Sensing Feeling types in intercultural interpreting due to their capability of analyzing, connecting the dots and, what is the most crucial, communicating multiple ideas. Also, the study revealed that both iNtuitive Thinking and iNtuitive Feeling types are fearless speculating about possible origins of the postcards provided.

According to the results of the present study, some recommendations to use authentic culture-based postcards in training future translators' and interpreters' intercultural awareness and critical thinking could be proposed: (a) knowing the learners' cognitive personality types assist educators in regulating the class efficiency and choosing the appropriate strategies and approaches, suited best one or another personality type with its inherent personality traits; (b) a larger research area focusing on identifying learners' cognitive personality types through different culture-based learning materials as well as on exploring how learners' cognitive types influence learning is required.

Limitations

This study, like many others, has a number of shortcomings. One obvious drawback of this study is the small sample size, meaning that it is primarily exploratory and used to develop hypotheses for future research aimed to look into the psychometric characteristics of various personality tests. We hope to confirm our findings by engaging more translator-students from other universities and cultural background to reveal the degree of interconnection between personality-based intercultural awareness and critical thinking skills. There is an opportunity to establish an international database relating personality traits to decisions across culture-based visual data, which would be helpful to a wide range of scholars and provide topics for further exploration. Clearer patterns might become apparent if a study could focus on enough informants who exhibit a single dominant personality trait. In addition, it would be useful to investigate whether and to what extent visual literacy of undergraduate translation students affects their intercultural awareness.

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