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Student Perceptions and Behaviors in Human Translation, Post-editing, and GPT-Enhanced Revision

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# Dealing with Translational Uncertainty

**Student Perceptions and Behaviors in Human Translation, Post-editing, and GPT-Enhanced Revision**

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## Abstract

This article examines how translation students perceive and manage uncertainty across three modalities: human translation (HT), post-editing (PE), and GPT-enhanced revision. Drawing on data from a final-year translation course at the University of Cyprus—including students' translations of satirical French texts into Greek, reflective commentaries, a post-project questionnaire, and weekly assignments—the study traces how units of creative potential (e.g., metaphor, cultural reference, stylistic markedness) trigger uncertainty and how students address such challenges. Rather than being experienced primarily as a hindrance, uncertainty often functioned as a catalyst for research, comparison, and creative reformulation. The modalities shaped this dynamic in distinct ways: HT generated the highest levels of uncertainty but also elicited the richest exploratory responses; PE tended to channel uncertainty into error detection and constrained intervention; and GPT-enhanced revision was perceived to foster a dialogic, evaluative mode of engagement where students compared alternatives and selectively adopted suggestions, though not always successfully. The article argues that uncertainty should be re-framed pedagogically as a resource for creativity, risk management, and self-regulation, and that AI tools are most effective in training when embedded within a pedagogy of critical evaluation.

### Keywords:

translation pedagogy, translational uncertainty, uncertainty management, human translation, AI-tools in translation

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## 1 Introduction

Uncertainty is an inherent dimension of translation, especially when dealing with ambiguity, figurative language, culturally embedded meaning or other phenomena that resist straightforward transfer. Rather than indicating a lack of competence, it can be seen as a productive force that triggers reflection, risk management, and creativity (Tirkkonen-Condit 2000; Angelone 2010). Recent technological developments, however, complicate this dynamic. Neural machine translation (NMT) and large language models (LLMs) appear to reduce hesitation by offering fluent solutions, yet they risk masking errors, constraining agency, and shifting the translator's role from creating to evaluating. Faced with such constantly changing conditions, how do students perceive and manage uncertainty?

This article examines this question in the context of *FES 362 Translation Practice*, a compulsory final-year course in the Department of French and European Studies at the University of Cyprus. The course approaches translation as a problem-solving and interpretive activity (Kusmaul 1995; Angelone & Shreve 2011; Bayer-Hohenwarter 2011), aimed at fostering creativity, critical thinking, and intercultural competence. Within this framework, students are encouraged not only to produce translations but also to reflect on their decision-making processes when confronted with uncertainty.

While earlier studies examined how translators experience uncertainty in human translation (HT) and, to some extent, in post-editing (PE) (e.g., Shreve 2006; Angelone 2010; Ott *et al.* 2018; Martín de León & Cardona Guerra 2022), recent investigations into LLMs focus

mainly on how students perceive and adopt ChatGPT in training contexts (e.g., Almahasees *et al.* 2024), yet without examining how uncertainty is perceived, experienced and negotiated in such settings.

This study addresses this gap by comparing students' perceptions of and engagement with uncertainty across three modalities: (1) HT from scratch, (2) PE of DeepL output, and (3) GPT-enhanced revision both in HT and PE. Drawing on empirical data comprising student translations of satirical French texts into Greek, accompanied by students' commentary, a post-project reflective questionnaire, and weekly assignments, the analysis identifies key perceived triggers of uncertainty and the strategies students mobilized in response. It thus contributes to the literature on uncertainty as both challenge and resource in translator education, and on the role of

AI tools in shaping translational competence.

## 2 Relevant research: Uncertainty in translation

In cognitive translation studies, uncertainty is recognized as a central component of the translation process and “a common feature of translation performance” (Martin de León & Cardona Guerra 2022: 51). It has long been linked to problem-solving activity (Tirkkonen-Condit 2000; Angelone 2010; Angelone & Shreve 2011) and is considered inherent to translators’ higher-order cognitive operations involving decision-making and mediation between languages. Angelone (2010: 17) conceptualizes translation as a “chain of decision-making activities relying on multiple, interconnected sequences of problem-solving behavior,” spanning three key cognitive processes: source-text comprehension,

meaning transfer, and target-text production. When these processes are disrupted—typically by unfamiliar, complex, or ambiguous textual elements—translators’ declarative or procedural knowledge may prove insufficient, giving rise to uncertainty.

Uncertainty has been described as a cognitive state of indecision, triggered by a problem nexus—the intersection of a textual challenge (lexical, syntactic, collocational, cultural) with a temporary limitation in cognitive resources. Such moments disrupt translation flow and manifest in behaviors such as pauses, revisions, and information-retrieval efforts (dictionary look-ups, online searches) (Angelone 2010). Researchers have examined uncertainty through various methodological lenses. Think-aloud protocols (Tirkkonen-Condit 2000; Künzli 2004; Angelone 2010) capture verbal cues such as questions, hedging,

or acknowledgements of lacking knowledge. When combined with screen recordings, they also reveal non-verbal indicators—scrolling, pauses, deletions, cursor movements, and reformulations (Angelone 2010; Angelone & Shreve 2011). Physiological measures such as eye-tracking and changes in pupil size have likewise been examined (Angelone 2010).

Angelone’s (2010) metacognitive model of uncertainty management comprises three interrelated phases:

1. Problem recognition - identifying where comprehension or reformulation breaks down;
2. Solution proposal - generating one or more possible translations;
3. Solution evaluation - assessing adequacy and contextual appropriateness.

These phases often appear as triadic bundles and can be observed in pauses, reformulations, look-ups, and verbal ar-

ticulations of doubt. Sonja Tirkkonen-Condit (2000) has shown that translators display distinct uncertainty profiles, including linear problem–solution reasoning, the generation and testing of multiple options, decision postponement, and the endorsement of interim solutions. Professional translators typically demonstrate greater tolerance for ambiguity and stronger self-regulation. This supports a pedagogical shift away from seeking an “ideal” solution toward a probabilistic view of decision-making.

Anthony Pym (2025) rejects the notion of one ideal translation, framing translation instead in terms of risk, understood as the probability of communicative failure. Decision-making is probabilistic: translators estimate which option is most likely to succeed in context. This perspective is especially relevant in PE and AI-assisted translation, where surface fluency can conceal pragmatic or

cultural inadequacies. Students must make decisions likely to produce culturally, stylistically and ideologically adequate versions (Constantinou 2025a, 2025b).

From a cognitive perspective, uncertainty may arise for translators and post-editors when they are confronted with a multiplicity of valid translation options for a single source sentence; this becomes especially salient when systems (i.e., translation memories) provide translators with several alternative variants (Ott *et al.* 2018; Martín de León & Cardona Guerra 2022). Tirkkonen-Condit (2000) identified this abundance of alternatives as a potential uncertainty trigger, while Wolfram Wilss (1994) linked decision delays to both the number of options and the need for additional information. Michael Carl, Andrew Tonge and Isabel Lacruz (2019), drawing on systems theory, concept-

ualize the translation process in terms of entropy, with cognitive effort increasing as equally probable options multiply. This hypothesis is supported by correlations between word-translation entropy and fixation durations during source-text reading (Schaeffer *et al.* 2016).

With regard to translation pedagogy, we argue here that uncertainty can be reframed as a productive space for creativity. Creativity in translation pedagogy has been associated with creative shifts, solutions that deviate from the linguistic structure of the source text but remain functionally and stylistically appropriate (Bayer-Hohenwarter 2011). Translational creativity, understood as the ability to generate non-literal, appropriate and context-sensitive solutions that meet the communicative goals of the source text (Guerberof Arenas & Toral 2022; Constantinou, 2025a), often emerges from moments of ambiguity.

Kusmaul's (1995) four-stage creative process (preparation, incubation, illumination, evaluation) mirrors uncertainty-management cycles, in which hesitation prompts exploration, evaluation, and refinement.

The CREAMT project (Guerberof Arenas *et al.* 2024) provides a comprehensive taxonomy of units of creative potential (UCPs); these include metaphors, idioms, puns, cultural references, colloquialisms, neologisms, and register variants. Such UCPs demand not only linguistic resources but also intercultural and contextual knowledge, often under conditions of uncertainty. Rather than hindering performance, uncertainty can act as a catalyst, fostering interpretive flexibility, stylistic sensitivity, and creative shifts that maintain functional and stylistic adequacy.

The growing integration of NMT systems and LLMs such as DeepL and ChatGPT introduces new forms of uncertainty into the translation process. While these tools can facilitate comprehension and offer fluent reformulation options, especially for more routine segments, they may also trigger stylistically flattened or culturally inadequate renderings, especially in texts involving irony, humour, or affect-laden discourse (Constantinou 2025a, 2025b). Research on professional translators has shown that neural machine translation post-editing (NMTPE) may result in a higher frequency of errors than HT; however, findings from educational contexts complicate this picture. Studies on MT literacy in translation training indicate that students generally produce fewer errors when post-editing NMT output, while achieving greater creativity and reader engagement when translating from scratch (Guerberof-Arenas *et al.* 2024).

Although students may value MT and LLM output for its speed and apparent fluency, PE may induce both over-trust and mistrust of MT output, with students either overlooking errors or rejecting appropriate MT solutions (Constantinou 2025a, 2025b). Translation competence is a key factor shaping performance across modalities: more proficient students are better able to critically assess and refine machine output, whereas less proficient students tend to rely on MT suggestions uncritically, affecting error management and the handling of figurative meaning (Constantinou 2025a, 2025b). However, the use of LLMs (such as ChatGPT) further complicates this dynamic, as even competent students may be misled by AI-generated suggestions, perceiving them as reliable and leading to overcorrection (Constantinou 2025c). This highlights the need for pedagogical approaches that foster critical evaluation and informed deci-

sion-making when negotiating uncertainty in translation.

Building on these insights, the present study investigates how students perceived and negotiated uncertainty and creativity across different modalities. The material, which was deliberately selected for its high density of UCPs, required students to navigate ambiguity, cultural specificity and stylistic nuance. The aim is to show how uncertainty can operate not as an obstacle but as a pedagogical resource for developing creative problem-solving and translational awareness.

### 3 Research Context, Procedure and Data

This study was conducted during the spring semester of the 2024–2025 academic year in the course *FES 362: Translation Practice*, taught at the Department

of French and European Studies, University of Cyprus. *FES 362* is one of two compulsory translation courses offered in the final year of the four-year undergraduate programs in French Studies and European Studies, respectively. *FES 361: Theories of Translation* (winter semester) introduces students to major theoretical models, translation competence and its subcomponents, and problem-solving strategies. *FES 362* focuses on hands-on practice through assignments, projects, and in-class tasks aimed at developing linguistic and intercultural competence, critical thinking, strategic autonomy, and creativity.

Students engage with a wide range of genres, including press articles (notably satirical discourse), official documents, advertising materials and popularized scientific texts, all requiring close attention to meaning, nuance, and context. Their work is supported by digital re-

sources such as dictionaries, corpora, and terminology databases. Building on empirical research conducted over the past three years in translation pedagogy, particularly on modality comparison (Constantinou 2025a, 2025b), the course, since the 2025 spring semester, has incorporated three distinct modalities: HT from scratch, PE of raw DeepL output, and AI-enhanced revision using ChatGPT to refine both their human-translated and post-edited versions.

As far as the workflow is concerned, the first 12 sessions were devoted exclusively to HT in order to consolidate students' foundational translation skills. PE was introduced in session 13, while HT remained an integral component of the course. From that point onwards, students were divided into two groups (Group 1 and Group 2) and engaged in both HT and PE tasks within the same session. Each article was divided into

two parts (A and B) and assigned according to a cross-over design: Group 1 translated Part A from scratch and post-edited the DeepL output of Part B, while Group 2 followed the reverse sequence. This design ensured that each part was both human-translated and post-edited by the two student groups, enabling systematic cross-modality comparison.

ChatGPT was introduced only during the final two sessions and under pedagogical constraints. Students were not allowed to use it to generate initial translations. Its use was restricted to revising their human-translated and post-edited versions, with revisions applied only when students judged them to be appropriate. This was in line with the structure of the final examination and the final project on which the present article is mainly based.

A key design principle is the selection of texts dense in UCPs, segments rich in metaphor, idiomatic language, intertextuality, cultural specificity, humour, or stylistic markedness, which require problem-solving and creative reformulation. All texts were pre-tested using AI-based tools, including Google Translate and DeepL (neural machine translation systems), as well as ChatGPT. With regard to the latter, pre-testing was conducted by the instructor with the use of both the free and paid versions of ChatGPT available during the spring semester of 2025, while students used the free version of ChatGPT during April–early May 2025, which was predominantly GPT-3.5–based. Pre-testing aimed to ensure that the selected materials contained translation problems that could not be resolved automatically and would therefore require human interpretive and creative intervention (Constantinou 2025a, 2025b).

The primary materials for this study consisted of excerpts from the French satirical newspaper *Charlie Hebdo*, selected for their figurative density, socio-political irony, and culture-specific references—features that tend to generate high cognitive load and interpretive uncertainty (Constantinou 2025a).

The project comprised a set of inter-linked tasks: (1) HT of one part with written commentary in which students discussed translation difficulties and described the strategies adopted; (2) PE of the second part based on raw DeepL output with commented revisions that also explained translation problems, choices and corrective interventions; and (3) AI-enhanced revision of both outputs using targeted ChatGPT prompts, followed by explicit justification of accepted or rejected suggestions. The final project replicated the pedagogical structure and group division of the weekly assign-

ments. Group 1 translated Part A from scratch and post-edited a raw DeepL output of Part B, while Group 2 followed the reverse sequence. This counterbalanced design ensured that each part was processed both through HT and PE. Each student submitted a portfolio including commented HT and PE versions, the GPT-enhanced versions, reflective commentaries on decision-making and tool use as well as screenshots documenting students' interactions with ChatGPT.

For the 2025 cohort, fourteen students enrolled in the course, and thirteen completed the final project (seven in Group 1 and six in Group 2). The cohort consisted of twelve female students and one male student. Only one student reported previous experience in translation.

The tasks explored in this study are based on the article entitled *Comme des putois* published in *Charlie Hebdo*<sup>1</sup> on 26 May 2025. While the present study does not aim to provide an exhaustive identification of UCPs, several features illustrate the challenges posed: extended animal metaphors with strong pejorative force (*comme des putois* “like polecats”; *moufettes* “skunks”); evaluative and culture-bound expressions (*baderne présidentielle* “presidential old fogey”); politically loaded neologisms (*putois bolloréen*, “Bolloré-aligned polecat”); stylistically marked vulgar and colloquial language (*gueuler* “to yell/raucously shout”; *gueule répugnante* “repulsive mug/face”); irony based on contrast; and intertextual references to political and historical figures and literary sources. Such stylistically dense segments are likely to trigger uncertainty,

requiring interpretive and problem-solving efforts and opening space for creative shifts across translation modalities.

A post-project questionnaire, combining Likert-scale and open-ended items, was administered to capture students' perceptions of uncertainty, difficulty, creativity, and confidence across modalities, along with their evaluation of AI tools. Students were asked to complete it immediately after having finalized their project.

The study also draws on weekly commented HT and PE assignments, which provide insight into how students approached uncertainty and problem-solving over time, thereby contextualizing the choices observed in their final projects. These interim submissions were examined for recurrent indi-

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<sup>1</sup> <https://charliehebdo.fr/2025/03/culture/comme-des-putois/>

cators—visual cues, metatextual notes expressing doubt, and alternative solutions—which were later applied to the portfolio analysis. Table 1 presents the

three datasets forming the empirical basis of this study: final project portfolios, the reflective questionnaire, and weekly assignments.

Dataset	Description	Contents
<b>Final Project Portfolios</b>	Deliverables from 13 students (G1 = 7, G2 = 6), each working on two parts of a journalistic article in HT and PE	<ul style="list-style-type: none"> <li>- HT outputs</li> <li>- PE versions</li> <li>- GPT-enhanced revisions (HT and PE)</li> <li>- Reflective Commentaries on choices, problems, strategies</li> <li>- Screenshots of ChatGPT prompts</li> </ul>
<b>Reflective Questionnaire</b>	Post-project questionnaire with Likert-scale and open-ended items	<ul style="list-style-type: none"> <li>- Ratings on difficulty, confidence, creativity, AI usefulness</li> <li>- Reflections on uncertainty, problem-solving, preferences</li> </ul>
<b>Weekly Assignments</b>	In-semester HT and PE tasks with commentary	<ul style="list-style-type: none"> <li>- Interim translations</li> <li>- Comments on lexical, cultural, and stylistic issues</li> <li>- Alternative solutions and expressions of doubt</li> </ul>

Table 1 Empirical datasets.

The reflective commentaries formed an integral component of the final project and consisted of written, retrospective responses to guided questions. Students were asked to discuss the challenges encountered during translation and post-editing, to explain how instances of uncertainty were addressed, and to document the strategies, resources, and tools used in the process.

The questionnaire comprised 43 questions in total, including 31 closed-ended Likert-scale items, and 12 open-ended questions. The closed-ended items were formulated as declarative statements and rated on a five-point Likert scale (1 = *not at all / strongly disagree*, 5 = *very much / strongly agree*). The open-ended questions invited students to reflect on specific moments of uncertainty, decision-making processes, and the strategies used to resolve ambiguity across translation modalities.

The questionnaire was organised into five thematic sections: (1) preferences and general perceptions; (2) perceived development of translation competences; (3) uncertainty in translation; (4) strategies, tools, and reflexivity; and (5) ethical reflections on the use of AI in translation.

Regarding uncertainty, the questionnaire included three closed-ended statements designed to capture students' perceived levels of uncertainty across translation modalities:

1. *Using ChatGPT helped me manage zones of uncertainty in the source text.*
2. *Human translation confronted me with more uncertainty than the other methods.*
3. *Post-editing reduced my uncertainty regarding translation choices.*

In addition, a set of open-ended questions invited more extended reflection on students' experiences across translation modalities, with particular atten-

tion to sources of uncertainty, problem-solving strategies, and comparative perceptions of HT, PE, and GPT-enhanced revision. The instrument included the following questions:

1. *How would you describe uncertainty in translation? Was it positive or negative for you? Explain.*
2. *Did you experience doubts that were useful or productive, and/or doubts that blocked or paralysed you? Give an example.*
3. *How did you resolve situations of uncertainty? Describe your strategy.*
4. *Refer to specific moments of uncertainty encountered in the texts you translated or post-edited. Provide concrete examples and indicate the approach used (HT, PE, ChatGPT-assisted revision).*

Students were neither instructed nor encouraged to conceptualize uncertainty as positive or negative; rather, the questionnaire invited them to report and evaluate their own experiences of doubt and hesitation during the tasks. The study was conducted in compliance with

the ethical principles and standards established by the University of Cyprus, as specified in its Code of Conduct for Research. Participants were fully informed of the aims of the research, and they provided their consent after being assured that their anonymity would be preserved and no personal identifiers would be disclosed.

## 4 Data Analysis

The analysis first examines students' reported perceptions of uncertainty, then identifies recurrent linguistic, visual, and metatextual indicators in the portfolios and assignments, and finally compares how uncertainty was managed across HT, PE, and GPT-enhanced revision.

### 4.1 Perceptions of Uncertainty

Questionnaire responses and reflective commentaries suggest that students viewed uncertainty not as a hindrance but as an intrinsic and often valuable dimension of translation. Five students explicitly described it as an integral part of the translation process. Across their responses, uncertainty was variously linked to hesitation between alternative solutions, lack of linguistic equivalence, and cultural differences, as illustrated below:

1. *There is not always a perfect equivalence between languages. [...] It is sometimes difficult to choose among various options when there is no single solution.*<sup>2</sup>

Uncertainty was also linked to contextual and interpretative ambiguity in the source text, particularly in the translation of culture-bound units such as id-

iomatic and metaphorical expressions, rather than to any lack of linguistic competence on the part of the student. One student, for instance, explained:

2. *For me, uncertainty in translation is when I do not know how to translate the text because of references to events I do not know, [...] an idiomatic expression, or a metaphor that is difficult to understand. This uncertainty sometimes tires me, but it allows me to reflect on different possible options and forces me to carry out additional research.*

While such moments could be tiring, they were also perceived as productive, prompting reflection on alternative options and the need for further research. Other students echoed this view, highlighting the effort required to investigate unfamiliar political and cultural references in both HT and PE. Idiomatic and metaphorical expressions—such as *urbi et orbi* (a Latin formula literally

<sup>2</sup> The original students' quotes in French were not reproduced here due to space constraints; only the English glosses are provided.

meaning “to the city and to the world”) or *moufettes* (literally “skunks,” used metaphorically as a pejorative label)—were repeatedly flagged as points of hesitation, testing students’ knowledge and producing divergent solutions. Differences observed across modalities indicate how figurative and culture-specific elements trigger uncertainty in distinct ways, calling for varying strategies of research, creativity and risk management (Constantinou in progress).

Similarly, other students framed uncertainty as a driver of cognitive effort and comparative evaluation, pushing them to “*think more, compare options and seek the most natural solution.*” Such reflections align with commentaries indicating how uncertainty enhances stylistic awareness and interpretive refinement. For example, when confronted with the phrase *pour le coller, comme un organe de carton* (“to stick it on, like a card-

board organ”), one student tested alternatives such as *μύτη από κουκλοθέατρο* (a nose from puppet theatre) or *μύτη από χαρτοτεχνία* (a nose made of paper craft) to determine which option would best convey the tone and imagery of the source text. Idioms, metaphors, and culturally embedded references were repeatedly cited as triggers for such creative reformulation. As one student put it, “*Uncertainty pushed me to explore creative solutions and refine my choices,*” while another said that uncertainty “*taught me that there is no single ‘right’ translation... and it stimulated my creativity.*”

These reflections echo Kussmaul’s (1995) creative cycle—preparation, incubation, illumination, and evaluation—where uncertainty functions as a catalyst for exploratory thinking and openness to multiple valid solutions.

## 4.2 General handling and indicators of uncertainty

Beyond their perceptions of uncertainty, students also described the concrete strategies they used to handle doubt in translation. The open-ended questionnaire revealed a consistent pattern of multi-step problem-solving, where uncertainty was perceived as a trigger for cognitive engagement rather than paralysis.

The first recurring strategy was consulting resources. Eight students reported that when faced with hesitation, they searched the Internet or consulted dictionaries, while two cross-checked cultural or historical references to confirm their interpretations. Another approach was iterative evaluation: students generated several renderings, compared them, and selected the one that “*seemed most fluent.*” The hedging here

(“seemed”) suggests that traces of uncertainty persisted even after a choice was made.

Three students reported delayed decision-making, deliberately postponing difficult choices: “*if I was still unsure of my choice, I wrote it in red so I could come back to it later.*” One student similarly described leaving a problematic segment aside and revisiting it later: “*I leave it and... come back with a clear mind.*” These practices reflect uncertainty monitoring (Tirkkonen-Condit 2000; Shreve 2006; Angelone 2010), where time functions as a regulatory resource, allowing hesitation to become a constructive pause.

AI-based tools were also mobilized as exploratory supports. Six students reported consulting ChatGPT or DeepL to generate alternative renderings, which they subsequently filtered through criti-

cal judgment. As one student explained, “*I looked for other translation versions on ChatGPT ... and modified them based on my critical opinion.*” Such accounts were punctuated by explicit markers of doubt (“I doubted,” “I was not yet sure”), underscoring that uncertainty persisted even when AI tools were involved.

One student, who consistently demonstrated high translational competence and reported investing more time in the HT task, went a step further by submitting both her human translation and post-edited version to a native Greek speaker unfamiliar with French. As she explained, this external review aimed to assess fluency and naturalness without interference from French syntactic structures.

These responses show how students reframed uncertainty into procedural strategies: consulting resources, explor-

ing alternatives, postponing decisions, testing options with AI tools, and evaluating outcomes. Their discourse was also rich in uncertainty markers, identified through inductive qualitative coding of students’ human translations, post-edits, and reflective commentaries, and summarized in Table 2 (next page).

Category	Markers	Examples from Data
<b>Linguistic markers of uncertainty</b>	Admissions of uncertainty; hedges; modal verbs	“I wasn’t sure if...”; “I hesitated between...”; “perhaps”; “it seems to me”
<b>Visual/Paratextual indicators</b>	Colour-coding, underlining, margin notes, symbols	Words in red; underlined expressions; “??”; colour-marked MT output in PE
<b>Multiple-solution proposals</b>	Listing or weighing options before deciding	Alternative renderings of the word <i>moufettes</i> : “ασβός” (badger), “νυφίτσα” (weasel), “βρωμόσκυλο” (stinking dog)
<b>Register and tone concerns</b>	Questioning adequacy of irony, satire, vulgarity, or stylistic load	Uncertainty over <i>grand casque à pointe, baderne présidentielle</i> ; whether Greek options sounded “too neutral” or “too vulgar”
<b>Cultural/semantic clarification</b>	Doubts on names, idioms, history, metaphors	<i>Les Irresponsables, urbi et orbi</i> ; hesitation over retaining foreign elements, etc.
<b>Metatextual/reflective notes</b>	Comments on adequacy, audience, explanations	Added explanations (e.g., <i>Bolloré, Trente Glorieuses</i> )
<b>Tool-reliance indicators</b>	Consulting DeepL, ChatGPT, dictionaries, corpora	“I used Google to understand the meaning”; “ChatGPT proposed ... then I chose ...”
<b>Procedural/strategic actions</b>	Steps to resolve uncertainty: research, comparison, validation, evaluation	Triangulating sources (Glosbe, Linguee, Wikipedia); iterative solution testing; external reader validation
<b>Resolution markers</b>	Phrases showing closure after deliberation	“At the end, I decided to ...” ; “I chose to keep it in French”

Table 2 Main markers of uncertainty in students' projects and assignments.

Hedges (*seemed, perhaps*), epistemic verbs and expressions (*I doubted, I wasn't sure*), and conditional formulations reflect not only hesitation but also an awareness of uncertainty as a manageable stage in the translation process. Students addressed uncertainty through research, postponement, evaluation, and tool-assisted exploration, articulating it through discourse marked by epistemic caution. Crucially, in this pedagogical context, such markers functioned as indicators of active cognitive monitoring—prompting reflection, comparison of

alternatives, and heightened awareness of translational risk—rather than hindering decision-making.

### 4.3 Students' experiences, behaviors and strategies for managing uncertainty across translation modalities

#### 4.3.1 Quantitative results

To examine students' experiences and perceptions of uncertainty across trans-

lation modalities, we first analyze the quantitative data related to uncertainty. As described in Section 3, the questionnaire included both open-ended and closed (Likert-scale) items, which are illustrated in Table 3 below.

Item (statement)	Not at all	A little	Moderately	A lot	Extremely
<i>In human translation, I faced more uncertainties than in the other methods</i>	1	3	4	3	2
<i>Post-editing reduced my uncertainty regarding translation choices</i>	2	1	6	3	1
<i>The help of ChatGPT allowed me to better manage zones of uncertainty in the source text</i>	0	0	3	7	3

Table 3 Student responses to Likert-scale items on uncertainty across translation modalities.

The Likert data suggest a clear modality-dependent pattern. Students largely agreed that ChatGPT helped them manage uncertainty: seven selected “a lot” and three “extremely,” while only three chose “moderately.” GPT-enhanced revision was therefore perceived by most students as highly supportive in dealing with uncertainty.

In contrast, HT was identified as the modality associated with the highest levels of uncertainty, although responses varied considerably. One student selected “not at all” and three “a little,” while the majority reported moderate to high levels (four “moderately,” three “a lot,” and two “extremely”). This dispersion reflects the uneven distribution of uncertainty across learners when working without technological mediation.

PE produced more ambivalent results. Some agreed it reduced uncertainty,

with six selecting “moderately”, three “a lot” and one “extremely”. Others disagreed: two chose “not at all” and one “a little.” This distribution suggests that PE had no consistent effect: for some it offered partial reassurance, for others it failed to reduce—or even reinforced—uncertainty.

Overall, these small-scale quantitative results suggest that students perceived human translation as the most uncertainty-inducing modality, post-editing as inconsistently uncertainty-reducing, and GPT-enhanced revision as particularly effective in managing doubt. Nevertheless, responses were heterogeneous, and given the limited sample size, the findings should be interpreted as indicative rather than generalisable.

The next subsection examines students’ reflective commentaries, alongside their translations, post-edited versions, and

GPT-enhanced revisions, to explore how uncertainty was handled in practice across the three modalities. It focuses on the behavioral strategies and decision-making processes through which uncertainty was negotiated.

### 4.3.2 Qualitative results

The reflective commentaries provide a deeper understanding of these patterns by showing how students described their strategies in practice. In HT, uncertainty was consistently reported as more frequent and more demanding than in the other modalities. As one student noted, HT involved “*more uncertainties than the other methods*” and required careful handling of idioms, irony, and cultural references. In contrast, PE commentaries were shorter and less detailed.

The use of ChatGPT and DeepL could transform a potentially paralyzing doubt

into a productive uncertainty. This observation aligns with uncertainty-management models in translation studies developed prior to the advent of LLMs, which conceptualize uncertainty not as a blockage but as a condition that can be

managed through targeted resource consultation and metacognitive problem-solving (Angelone 2010). The table below summarizes students’ behaviors, reflections and process-related outcomes across the three modalities.

Modality	Main Behavior	Student statements	Typical actions and process-related outcomes
HT	Interpretative- exploratory	“There were sentences I had to re-read several times to understand.” / “I wasn’t sure if I should translate or keep the Latin.”	Re-reading; resource consultation; option generation; creative reformulation; deeper engagement with meaning and tone
PE	Corrective-constrained	“Some historical names were mistranslated – I had to correct them one by one.” / “Post-editing seemed more constraining, I wanted to reformulate but had to limit myself to corrections.”	Error correction; constrained intervention; reliance on MT structure; stylistic homogenization; reduced creativity
GPT-enhanced	Evaluative-dialogic	“I wondered if this lexical choice was ironic enough.” / “Some suggestions were too free, but they helped me find a more striking version.”	Comparison of alternatives; acceptance/rejection of suggestions; stylistic fine-tuning; reinforcement of critical agency

Table 4 Student behaviors across translation.

For instance, several students confronted culturally charged terms through inventive lexical adaptations. One such case involved rejecting the literal rendering *Σαν κουνάβια* for the title *Comme des putois* (“like polecats”) in favor of *Όπως τα βρωμοκούναβα*, where the added prefix *βρωμο-* (“filthy”) intensifies the pejorative charge and more effectively conveys the satirical tone. A similar strategy of lexical augmentation was applied to other expressions requiring creative shifts, such as *baderne présidentielle* (“presidential old fogey”), ultimately rendered as *γεροξεκούτης της προεδρίας* (“doddering old man of the presidency”) to convey ridicule. The French pejorative *moufettes* (“skunks”) was treated similarly, with the prefix *βρωμο-* again used to compensate for the absence of an established Greek equivalent.

These cases highlight how moments of hesitation in HT, triggered by the presence of UCPs that required problem-solving and creative shifts, led students to move beyond literal transfer. Faced with uncertainty, they explored multiple options and produced solutions that were not only semantically adequate but also more closely aligned with the satirical register of the source text.

In the PE modality, students reported feeling less creative, frequently describing an oscillation between trusting and rejecting the machine output. One described the process as “*more constraining and limiting than human translation,*” noting that it reduced the translator’s role to checking rather than creating. Another reflected: “*I doubted DeepL’s translation, but I couldn’t correct it while keeping the meaning, so I left it as it was.*” This illustrates a constrained response to uncertainty: students recog-

nized inadequacies yet sometimes chose not to intervene, fearing that modification might distort meaning. For others, PE required “*as much vigilance, if not more, than human translation,*” since the surface fluency of the MT output could mask subtle errors. In such cases, uncertainty was associated less with generating solutions than with continuous monitoring and risk assessment. Examples included leaving a seemingly redundant expression, *αξιομνημόνευτη* (“memorable”), unchanged, or hesitating over figurative renderings lacking clear equivalents.

While in PE, students often approached uncertainty as a matter of error detection and correction, the introduction of GPT gave rise to a different dynamic. Students consistently described GPT not as a source of ready-made solutions but as a dialogic tool that helped them navigate uncertainty. As one put it, it was “a

*tool for exploration, not a final solution.*” In this modality, doubt became a trigger for comparison and evaluation:

3. *Even if my translation and ChatGPT’s were different, both worked, and this allowed me to compare and refine my choices.*

Rejecting GPT’s overly literal, awkward, or stylistically inappropriate suggestions was instructive, and reinforced the need for a critical filter. At the same time, GPT prompted refinements that enhanced precision and idiomaticity, for example, the preference for *μπόχα* (“stench”) over *δυσάρεστη οσμή* (“unpleasant odor”). In other instances, students capitalized on GPT’s prompts to experiment with culture-specific adaptations (e.g., *salon de thé* → *καφετέρια*, “cafeteria”) or neologisms, though not all attempts (e.g., *\*μπολορικό* to render unsuccessfully *bollooréen*, a coined adjective inspired by *Éric Zemmour’s* party *Reconquête* and its former ally *Bollooré*)

proved communicatively or linguistically successful.

One student emphasized the importance of a selective and critical stance when interacting with GPT’s outputs. As she explained,

4. *Among ChatGPT’s suggestions, I tried to keep only those that seemed relevant and better than my own choices, whether at the lexical, stylistic, or syntactic level.*

Here GPT was not understood as an authority providing definitive answers, but as a stimulus for comparison and filtering. Another student noted that weighing GPT’s outputs against her own drafts improved her sensitivity to stylistic nuance and reinforced the need for translator agency in decision-making.

A second reflection expands on this dialogic mode of engagement. By posing targeted questions such as “How can I

better render this metaphor in Greek?”, the student elicited multiple alternative renderings, often accompanied by explanations about register, fluency, and stylistic impact. Crucially, the student emphasized the comparative dimension: the variety of proposals allowed her to contrast options and select those that, in her view, conveyed the satirical charge of the French text more precisely while respecting the author’s intention:

5. *Thanks to these exchanges, ChatGPT suggested several alternative renderings... This interactive process allowed me to compare different formulations and to select those which, in my view, conveyed the text more precisely and with greater satirical force, while remaining faithful to the author’s intention.*

In this account, GPT emerges less as a repository of solutions than as a dialogic partner—one that stimulates exploration, explains its reasoning, and, crucially, invites students to refine their

stylistic choices through critical evaluation. These testimonies suggest that students positioned themselves as evaluators rather than passive adopters of machine suggestions.

Uncertainty was not erased but reframed as an opportunity to refine, weigh alternatives, and test stylistic effects. In this sense, GPT functioned less as a shortcut to “the right answer” than as a pedagogical catalyst, channeling doubt into comparative reflection and deliberate stylistic choice.

However, in other cases GPT produced inappropriate results that students nonetheless adopted, perceiving them as improvements over their initial solutions in both HT and PE without GPT. This highlights the importance of cultivating LLM literacy grounded in translation competence and deep linguistic knowledge, including sensitivity to se-

mantic nuances. For instance, one student opted for *παρεμβατικό* (“interventionist”) over *στρατευμένο δοκίμιο* (“committed essay”), to render *essai engagé*, thereby misrepresenting the rhetorical stance of the French original text. Another student adopted a GPT-generated expansion of the Latin papal blessing *urbi et orbi*, used metaphorically in the source text, in which added explanatory material (*όπως λένε – δηλαδή σε κάθε κατεύθυνση*) distorted the denotative meaning of the expression and weakened the intended irony.

Other students explicitly dismissed GPT’s proposed solutions, judging them to be faulty or overly free. One student noted:

6. *On the other hand, several of ChatGPT’s proposals were inaccurate, even erroneous, and were of course not retained. For example, the translation of ‘deux questions préoccupent le fils de Thomas Mann’ as ‘δύο*

*ερωτήματα τριβελίζουν τον νου του Κλάους Μαν’ (“two questions are nagging at Klaus Mann’s mind”) seems to me much too free, and in my opinion incorrect.*

Similarly, others pointed to stylistic infelicities that clashed with the satirical tone:

7. *Finally, some of the turns of phrase suggested lack of finesse or stylistic accuracy, for example, στη μάπα του φανατικού της τάρτας (“in the mug /face of the tart fanatic”), which sounds too plain, even trivial, for a text with such a carefully crafted satirical tone.*

In this way, GPT functioned less as an authoritative voice than as a catalyst for both productive reflection and, at times, problematic overreliance—underscoring the need to frame its use within a pedagogy of critical evaluation.

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## 5 Conclusions

This study has shown that uncertainty, far from being a paralyzing obstacle, was largely experienced by students as an inherent and often productive part of the translation process. Across modalities, students reframed hesitation as a stimulus for research, comparison, and stylistic experimentation, aligning with models of uncertainty and risk management (Angelone 2010). HT emerged as the most uncertainty-inducing but also the richest ground for creative reformulations, especially when dealing with idioms, metaphors, and culturally embedded references. PE, in contrast, often constrained agency, reducing uncertainty to error detection and correction, though occasional moments of creativity did occur. GPT-enhanced translation fostered a more dialogic mode of engagement: students critically weighed, refined, or rejected suggestions, position-

ing GPT as a catalyst for evaluation rather than as a provider of definitive solutions; nevertheless, there were moments of communicative failure.

The findings suggest that uncertainty should be integrated into translation pedagogy not as a deficit but as a driver of deeper engagement, creativity, and self-regulation. While PE demands vigilance and error-spotting, it does not necessarily guarantee successful correction and may risk flattening stylistic choices unless complemented by tasks fostering autonomy. AI-based tools such as GPT can support uncertainty management and stylistic refinement, but only when framed within a pedagogy of critical evaluation. Cultivating this capacity to navigate ambiguity and assess tool outputs critically is essential to preparing language specialists for professional practice in a rapidly evolving technological landscape.

## References

- Almahasees, Zakaryia, Hussein Abu-Rayyash, Sameer Naser Olimat & Dana Mahadin 2024. An analytical study on student perceptions of using ChatGPT in language translation. *Language Value* 17(2): 1–23. <https://www.doi.org/10.6035/languagev.7925>
- Angelone, Erik 2010. Uncertainty, uncertainty management and metacognitive problem solving in the translation task. In: G.M. Shreve & Erik Angelone (eds) *Translation and cognition*. Amsterdam: John Benjamins, 17–40. <https://doi.org/10.1075/ata.xv.03ang>
- Angelone, Erik. & Gregory, M. Shreve 2011. Uncertainty management, metacognitive bundling in problem solving, and translation quality. In: Sharon O’Brien (ed.) *Cognitive explorations of translation*. London: Continuum, 108–130. <https://doi.org/10.1075/ata.xv.03ang>
- Bayer-Hohenwarter, Gerrit 2011. ‘Creative Shifts’ as a Means of Measuring and Promoting Translational Creativity. *Meta* 56 (3): 663–692. <https://doi.org/10.7202/1008339ar>
- Carl, Michael, Andrew Tonge & Isabel Lacruz 2019. A systems theory perspective on the translation process. *Translation, Cognition & Behavior* 2(2): 211–232. <https://doi.org/10.1075/tcb.00026.car>
- Constantinou, Maria 2025a. Translating Creative Language with(out) AI-based Tools: Evidence from a General Translation Course at the University of Cyprus. In: Katharina Walter & Marco Agnetta (eds.), *Applying Artificial Intelligence in Translation: Possibilities, Processes and Phenomena* (1st ed.). Routledge. 81–99. <https://doi.org/10.4324/9781003539698-7>
- Constantinou, Maria. Emotive expressions as units of creative potential: Insights from a general translation course for French and European studies undergraduates. In: Leonard Pon & Ivana Šarić Šokčević (eds.) *Jezik u doba globalizacije*. Osijek: Croatian Applied Linguistics Society, 2024, 283–305.
- Constantinou, Maria 2025c. AI Literacy and Creative Problem-Solving in Translation: Student Engagement, Use, and Perceptions. Presentation at the 8th International Conference of the International Association for Translation and Intercultural Studies (IATIS), *Sustainable Translation in the Age of Knowledge Extraction, Generation, and (Re)Creation*, Sultan Qaboos University, Muscat, Oman, 10–13 December, 2025.
- CREAMT 2022. Creativity and Narrative Engagement of Literary Texts Translated by Translators and Neural Machine Translation. <https://cordis.europa.eu/project/id/890697>
- Guerberof Arenas, Ana. & Antonio Toral 2022. Creativity in Translation: Machine Translation as a Constraint for Literary Texts. *Translation Spaces* 11 (2): 184–212. <https://doi.org/10.1075/ts.21025.gue>
- Guerberof Arenas, Ana, Susana Valdez & Aletta G. Dorst 2024. Does Training in Post-editing Affect Creativity? *The Journal of Specialised Translation* 41 (January): 74–97. <https://doi.org/10.26034/cm.jostrans.2024.4712>
- Kussmaul, Paul 1995. Creativity in Translation. *Training the Translator*. Benjamins Translation Library, vol. 10: 39–54. Amsterdam: John Benjamins Publishing. <https://doi.org/10.1075/btl.10>

Künzli, Alexander 2004. Risk taking: Trainee translators vs professional translators. A case study. *Journal of Specialised Translation* 2: 34–49. <https://www.jostrans.org/article/view/7215>

Martin de León, Celia & José María Cardona Guerra 2022: Spoiled for choice?: Uncertainty facing options in translation. *Translation & Interpreting: The International Journal of Translation and Interpreting Research* 14(2): 50–67. <https://www.transint.org/index.php/transint/article/view/1365>

Ott, Myle, Michael Auli, David Grangier & Marc'Aurelio Ranzato 2018. Analyzing uncertainty in neural machine translation. In: Jennifer Dy & Andreas Krause (eds) *Proceedings of the 35th International Conference on Machine Learning, 10–15 July 2018, Stockholmsmässan, Stockholm, Sweden* (n.p.). <https://www.transint.org/index.php/transint/article/view/1365>

Pym, Anthony 2025. *Risk Management in Translation*. Series: *Elements in Translation and Interpreting*. Cambridge University Press. <https://doi.org/10.1017/9781009546836>

Schaeffer, Moritz, Barbara Dragsted Kristian Tangsgaard Hvelplund, Laura Winther Balling &


Michael Carl 2016. Word translation entropy: Evidence of early target language activation during reading for translation. In: Michael Carl, Srinivas Bangalore & Moritz Schaeffer (eds) *New directions in empirical translation process research: Exploring the CRITT TPR-DB*. Cham: Springer, 183–210. [https://doi.org/10.1007/978-3-319-20358-4\\_9](https://doi.org/10.1007/978-3-319-20358-4_9)

Shreve, Gregory, M. 2006. The deliberate practice: Translation and expertise. *Journal of Translation Studies* 9(1), 27–42.

Tirkkonen-Condit, Sonja 2000. Uncertainty in translation processes. In: Sonja Tirkkonen-Condit & Riitta Jääskeläinen (eds) *Tapping and mapping the process of translation: Outlooks on empirical research*. Amsterdam: John Benjamins, 123–142. <https://doi.org/10.1075/btl.37.13tir>

Wilss, Wolfram 1994. A framework for decision-making in translation. *Target* 6(2), 131–150. <https://doi.org/10.1075/target.6.2.02wil>

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