Bi-Directionality in English-Arabic-English translation of relativization

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ABSTRACT

Bi directionality, a common practice in translation industry, refers to the transfer from L2 to L1 (direct translation) or L1 to L2 (inverse translation). Several studies have investigated relativization in direct or inverse translations, but few studies have considered relativization in the two translation directions. Following a hypothesis–based observational design, this study investigated the Arab undergraduates' performance on the direct and inverse translation of relativization. The study sample comprised undergraduates in the College of Languages and Translation (n = 36) and was divided into two groups (students of English and students of translation). The results showed statistically significant differences between students' performance on direct and on inverse translation (t (35) = 14.906, ≤0.05), indicating that inverse translation was more difficult than direct translation. The independent-sample t-test revealed that the students of translation outperformed the English students in direct and inverse translations. Despite the two groups' low performance on inverse translation, both considered that direct and inverse translations were equally 'somewhat difficult'. The paper concluded with suggestions that could guide the design of the translation courses and selecting teaching methods that could improve students' translation of relativization.

1. Introduction

English and Arabic are members of different language families, with the former belonging to the Endo-European family and the latter to the Semitic family. Knowing the similarities and differences between the two languages, and knowing how to deal with the differences, is crucial to overcoming problematic areas in translation [1]. Accordingly, researchers stress the importance of competence in directionality [2–4,5]. The topic of the differences and similarities between languages has been the core of Contrastive Linguistics investigation [6], and it has been an area of inquiry in second language acquisition. Researchers in Contrastive Linguistics argue that the similarities between languages simplify language learning, while differences complicate it. In translation studies, the study of similarities and differences between the source language (SL) and target language (TL) is related to bi-lingual translation competence [5]. This study investigates relativization from a translation perspective, namely directionality competence which,

according to the authors' knowledge, has not received due attention in the context of English-Arabic translation.

This study is driven by the need to assess the performance of trainee translators and students of English in translating relative clauses from English to Arabic and vice versa. The study sample comprised undergraduates in the College of Translation at a Saudi university. The focus of this study is the students' linguistic competence, which is a cornerstone of other competencies. Linguistic competence is strongly emphasized in the models of translation competence [7,8]. Within this realm, this study assesses the students' linguistic competence in the direct and inverse translation of relativization to determine the shortcomings in undergraduates' linguistic competence in relativization translation.

The research hypothesis posits that reverse translation, specifically from Arabic to English, presents greater challenges compared to direct translation, as training programs tend to prioritize the latter [9,10]. Furthermore, it is believed that transferring from a second language (L2) to a first language (L1) is relatively smoother due to students' knowledge of and proficiency in their native tongue. Based upon this hypothesis, the present study investigates the performance and perception of students regarding the inverse translation (Arabic to English) and the direct translation (English to Arabic) of relativization.

While previous research has touched upon the notion of directionality in translation [3,9,10,11,12], these studies have approached the topic from diverse perspectives, including cognitive processes, utilization of online resources, translation of metaphor, and the viewpoint of translators. However, these investigations have yielded conflicting results concerning the levels of difficulty associated with direct and inverse translation [9,10]. Therefore, this study seeks to contribute to the existing body of knowledge by providing empirical evidence pertaining to the translation of relativization and shedding light on the relative levels of difficulty of both types of translation. It is anticipated that the study's findings will offer valuable insights into the translation process and improve our understanding of the challenges encountered in the specific context of relativization.

1.1. Literature review

In the course of development, translation studies have evolved according to different translation theories such as the 'linguistic approach' [7,13]), 'text linguistic approaches' [14], and 'functional approaches' [15,16]. Linguistic theories predominantly emphasize the structured interconnections among linguistic units within language systems. The linguistic theory is appropriate for dealing with the translation of relativization where the focus is on the syntactic level. The linguistic theory of translation provides a framework for understanding the linguistic complexities involved in the translation process, emphasizing the importance of language structures, meaning transfer, cohesion, coherence, and stylistic considerations to ensure accurate and effective communication between languages. This linguistic approach comprises 'formal equivalence' and dynamic equivalence', which could assist translators in terms of syntax and vocabulary. To be specific, when there are differences between the relative clauses in the ST and the TT, the translator applies the functional equivalence strategy to communicate the message to the TL readers ([17]. According to Ref. [17]; 118): "Differences in the grammatical structures of the source and target languages often result in some change in the information content of the message during the process of translation".

Accordingly, translators should consider the grammatical structures of the SL and the TL to avoid the distortion of meaning [17]. lists several difficulties that may arise when dealing grammatical structures: number, gender, person, tense and aspect, voice and word order. The following section gives a detailed account of the grammatical differences in the structure of relative clauses in English and Arabic.

1.1.1. Structure of relative clauses in English and Arabic

A relative clause is a syntactic structure in English and Arabic that develops the structure and meaning of a sentence. Because each language has its own system, there are structural differences between the relative pronouns and clauses in Arabic and English regarding form, use, and position. Relative pronouns introduce relative clauses in both English and Arabic to refer back to a noun already mentioned in the sentence [18]. In English, the relative pronoun precedes relative clauses. For example, in the sentence *The man who lives next door is my neighbor*, 'who' refers to *man*. In Arabic, the structure of relative pronouns is slightly different from English. The pronoun followed the antecedent, e.g., سافر الرجل الذي يعيش في قريتي. In this sentence, "الذي" (al-ḏayy) is the relative pronoun, and refers to "الرجل" (ar-rajul) ([19]).

English relative pronouns have ten forms, while Arabic has 11 forms.[1] Because Arabic is a synthetic language, it agrees with the following grammatical features: case, number, gender; whereas, English agrees with the case only in certain instances [20]. Additionally, English relative pronouns refer to indefinite or definite nouns whereas, in Arabic, the relative pronoun refers to definite nouns. In English, prepositions can precede relative pronouns as in, for example, *that is the man with whom I talked about tourism*, whereas in Arabic, a preposition cannot precede relative pronouns as in, for instance, هذا هو الطالب الذي تحدثت معه عن مستواه الدراسي. The resumptive pronoun is a grammatical feature of the Arabic relative clause, which refers to the relative pronoun's antecedent, an obligatory element in the Arabic relative clauses in the case of indirect object, genitive, and object of comparison positions [18].[2]

Translators may face challenges when translating some particles of relative pronouns from Arabic into English, e.g., dual, plural, and gender-based pronouns. While Arabic relative pronouns agree with gender, duality, and plurality, English does not, resulting in the loss of meaning in a literal translation. See Table 1.

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[1] English relative pronouns are: who, which, whom, whose, that, what, whatever, and whoever, when, whereas Arabic relative pronouns are: 'من، الذي، التي، اللذان، اللتان، اللذين اللائي، اللواتي، الأولى، ما، أي، ذو , ذا .

[2] قابلت الطالب الذي منأته بتفوقه.

Table 1
Relative pronouns in English and Arabic.

Features	English	Arabic
Subject relative pronouns	who/whom, which, that	الذي, التي , اللتان, اللذان , الذين, اللاتي, اللائي[a]
Object relative pronouns	who/whom	الذي, اللتين, اللذين
	which, that	
Possessive relative pronouns	Whose	...الذي، التي، الهاء، الذين
Dual relative pronouns	Neutral	اللذان، اللتان
Plural relative pronouns	Neutral	الذين، اللائي اللاتي، اللواتي
Feminine Gender	Neutral	التي، اللتان، اللاتي، اللائي، اللتين

[a] It is used for both plural masculine and feminine.

In English, the relative pronouns cannot precede the antecedent, e.g., *I spoke to the man who lives next door*. In some cases, it takes the first position in a sentence with a change in the form of the relative pronoun, as in 'whoever, whatever.' However, Arabic relative pronouns are placed at the beginning of the sentence or occupy different positions in a sentence [21,22]. These differences in the positions of relative pronoun in English and Arabic sentences may pose a problem for a translator during production, particularly in inverse translation (Arabic to English). Based on these differences, the authors sought to obtain empirical evidence from students' translations of relative pronouns to determine whether bi-directionality complicates the production process.

1.1.2. Translation procedures

The translation of relative pronouns requires careful consideration of the co-text and the intended meaning. A widely-accepted theory of translation that can be applied to the translation of various texts does not exist, but several theories help comprehend the nature of translating or creating standards for evaluating a specific translation 23. Different translation procedures have been proposed, ranging from literal, moderately literal, near idiomatic, idiomatic, to co-drafting [24]. This continuum also indicates the stages of development of general translation theory prior to or during the twentieth century [24]. When translating the relative pronouns, the translator uses the literal translation when there are similarities between the SL and TL relative pronouns in terms of word order, gender and case. If there are differences between the relative pronouns in terms of gender, duality, and first position, the translator uses the addition strategy to compensate for the lack of certain characteristics of relative pronouns in English. Conversely, in some cases, the translator should delete the relative pronouns since their inclusion in the translated clauses is redundant. Using co-text involves looking at how the pronoun is used with other words or phrases to determine the appropriate translation. Translating relative pronouns inappropriately spoils the structure of the sentence rather than its meaning. Free translation comes into play when a literal translation is not feasible, and it encompasses techniques such as transposition (shifting word classes, e.g., verb for noun, noun for preposition) and modulation,[3] [25].

1.1.3. Problems associated with direct and inverse translations

The general assumption is that inverse translation (L1 to L2) is more complicated, time-consuming and arduous, although there are conflicting results in many empirical studies. A few studies dealt with bi-directionality from the linguistic perspective [19,26,27,28,29].

[26] discovered that object-relative clauses were more challenging to process than subject-relative sentences. Similarly, [28] investigated the L2 sentence processing mechanism, finding that the object–based relative pronouns are more challenging to understand than subject–based relative pronouns, indicating the former's greater syntactic complexity. Abuissac (2016) investigated students' translations of relative clauses using [25] translation techniques. The study examined how effectively the student translations conveyed the meaning of the original text. The author found that translating relative clauses into their native tongue was simpler than into the L2 [19]. investigated the difficulties encountered by fourth-year students when translating relative clauses from English into Arabic and vice versa. He discovered that some student errors were attributed to differences in the structure of English and Arabic, so he recommended that contrastive linguistics be included in translation courses. Klaudy and Caroly 27 studied bi-directionality in translating reporting verbs in literary texts from English into Hungarian and vice versa. They found that translators frequently omitted implications and preferred explicit forms to the more implicit ones in both directions (L2 to L1 to L1 to L2).

Several studies have been conducted on direct and inverse translation from the perspective of the translation process [9,10,11,12]. [9,10,30] investigated directionality in the translation of metaphor, using eye-tracking, Translog, and retrospective reports, finding that directionality can significantly affect the relationship between processing types (ST processing, TT processing, and parallel processing) and metaphor-related text types and attention distribution patterns. [11] studied the effect of directionality on using online resources, using eye-tracking, and Translog. They found that online resources require more cognitive effort when translators work on their L2. [12] reported on a study conducted with a group of bidirectional translators and a group of unidirectional translators who gave their views of direct and inverse translation, using introspective verbal protocols. Heeb found no substantial differences in the self-concepts of the two groups of participants. Using eye-tracking, [30] compared professional translators' L1 and L2 translation processes. Results confirmed that L2 translation is cognitively more demanding than L1 translation, while other results did not. Alves *et al.* [10] conducted a study with bidirectional translators and found that the cognitive effort involved in a translation process was not

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[3] The ST message changes in a manner that conforms to the natural patterns of the target language.

significantly different between direct and inverse translation.

The inconsistent results obtained by the aforementioned studies indicate that bi-directionality in regard to relativization, particularly in English-Arabic translation, has not received sufficient attention from a linguistic standpoint. Therefore, the objective of this study is to provide empirical evidence regarding the bi-directionality of translating relativization in English-Arabic translation.

2. Research questions

The empirical literature shows lack of studies on bi-directionality in relativization in English-Arabic translation and conflicting results for the problematicity of direct and inverse translation at an international level; hence, this study aims to offer empirical evidence on bi-directionality in the context of translating relativization by raising these questions.

1. Are there statistically significant differences between the participants' performance, perception, and dictionary use when undertaking direct and inverse translations?
2. To what extent do students of English and students of translation differ in their performance and dictionary use when undertaking direct and reverse translations?
3. Are there statistically significant differences between the students of English and the students of translation in their perceptions of the difficulty of direct and of inverse translations?
4. What are the problematic areas in the translation of relative pronouns in direct and inverse translations?

3. Methodology

The study followed a hypothesis-based observational approach involving participants undertaking direct translation (L2 to L1) and inverse translation (L1 to L2). The aim was to determine whether there are differences in participants' performance in terms of direct as opposed to inverse translation. According to Hanson and Mellinger [34], the distinction between quasi-experimental and observational research is primarily a matter of degree, although in the latter approach, the researcher cannot manipulate the independent variables (p.31). In this study, the performance of two groups (students of translation and students of English) are compared in terms of the quality of their direct and inverse translations. Based on the recommendation of Mellinger and Hanson [31], a paired sample *t*-test was used to test one group under two conditions to show the differences between the two. The independent *t*-test is an appropriate statistical test to use when one wants to compare two independent groups in order to show the differences between them.

3.1. Participants

The population sample for the study was selected from the College of Languages and Translation, and comprised male and female students of translation and English (N = 36, Age, M = 21.88, SD, 1.237) in the last year of their studies. The College of Languages and Translation has two departments: 1. English as a Foreign Language and 2. Translation, from which 36 students were recruited for the study (students of English (N = 18) and students of translation (N = 18)). Some responses were eliminated since they were not complete.

The students of translation are in the last year of their four-year translation course. The translation course curriculum included various fields of translation (scientific, legal, journalistic, military, medical, etc.) and units on language skills. The translation training program offers various types of units related to translation to improve students' translation skills and knowledge. The English language course is a linguistics-oriented program¸ offering two units on translation and a unit on contrastive linguistics. Therefore, the translation task was chosen for its relevance to the EFL students' knowledge and skills. Additionally, the translation task required only sentential skills and did not require specialized translation training. By comparing the performances of both groups of students, it is hoped that their strengths and weaknesses in terms of direct and reverse translations of relative clauses, will be revealed.

3.2. Translation task

The authors compiled 20 Arabic and English sentences containing various relative pronouns based on the similarities and differences between English and Arabic. The students were tasked with translating 10 English relative clauses into English and 10 Arabic relative clauses into Arabic to determine their level of performance in both directions: English to Arabic (direct translation) and Arabic into English (reverse translation). The selection of English and Arabic relative clauses was based on systematic criteria: selection and position of relative pronouns, gender, duality, use of preposition, possession, resumptive pronoun and the addition or omission of relative pronouns [18,33]. The statements to be translated by the students were selected based on the differences in the relative pronoun structure in English and Arabic. The English relative pronouns were taken from BBC Learning English and Richards (1992), whereas the Arabic relative pronouns were taken from Ref. [18]. The authors considered the content validity of the test via the panel's review of the content and design of the translation task in terms of coverage and clarity of the scoring. The two reviewers recommended deleting some of the relative clauses to avoid repetition and irrelevant statements.

A difficulty scale supplemented the translation task to determine the students' perception of the difficulty of translating relative clauses in direct and inverse translations. Furthermore, the students were asked whether they used monolingual or bilingual dictionaries to translate the relative particles. When they encountered difficulties with the translation task, they were allowed to consult dictionaries. Furthermore, any errors in the translation of words other than relative pronouns were ignored. Hence, only the relative pronouns in the sentences received a score. The correct relative pronoun in each sentence received a one-point score, while the

incorrect relative pronoun received zero points. The scores were out of 20. Note that the students were not allowed to use machine translation, which was stipulated in the translation task instructions. In the translation brief, the students were asked to consider the ST meaning and the TT structure.

3.3. Data analysis

The study investigated two independent variables (direct translation and inverse translation) and three dependent variables (students' performance, use of dictionary, and perception of difficulty) in two conditions (in English language programs and translation training programs). The authors investigated whether the type of translation - direct or inverse - affects students' performance, use of a dictionary, and perception of difficulty, hypothesizing that bi-directionality (direct and indirect translation) influences will influence all three of these. The authors used a paired-sample test to determine whether there are significant differences between students' performance in direct translation and inverse translation. Also, the authors added another dimension (the variable, type of course) to see whether there are significant differences between the performance of students of English and that of students of translation in terms of the direct and inverse translation of relative clauses. The authors used the independent-t-test to show the differences between the two groups under direct and inverse translation conditions [34]. The authors used a difficulty scale to reveal the students' perception of the level of difficulty of direct and inverse translations.

4. Findings

The findings included quantitative and qualitative data, which were organized according to the research questions.

4.1. Quantitative data

The first question, 'Are there statistically significant differences between the participants' performance, perception, and dictionary use in direct and inverse translation?' was concerned with the differences in performance, perception and dictionary use of the whole sample (both students of English and of translation) in direct and inverse translation. The question comprises three elements (performance, perception and dictionary use), which are answered in turn.

In regard to performance, findings revealed that students' performance in the direct translation was higher (M = 7.7917, SD, 1.29491, N = 36) than for the inverse translation of relative pronouns M = 5.1389, SD, 1.36073, N = 36). The paired-sample t-test yielded statistically significant differences between direct translation and inverse translation of relative pronouns (t(35) = 14.906, p < 0.05, d = 1.06) with a large effect size, indicating that inverse translation is significantly more complex than direct translation (see Table 2).

In regard to dictionary use, results indicated no difference between the students' use of a dictionary for direct translation (M = 0.0833, SD = 28,031, N = 36) and for inverse translation (M = 0.0833, SD = 28,031, N = 36). The paired-sample test showed no differences between the use of the dictionary for direct and inverse translation, as the test value equals zero (see Table 3).

For the degree of translation difficulty, the mean scores indicated that the students rated the level of difficulty of direct translation (M = 3.6389, SD, 0.86,694 N = 36) as 'somewhat higher' than reverse translation (M = 3.4444, SD, 0.80,868 N = 36). However, the

Table 2
Students' performance in direct and inverse translation.

	Comparison (paired sample *t*-test					
	M	SD	T	df	P	d
Direct translation	7.2500	1.22774	14.906	35	.001	1.06
Inverse translation	4.6944	1.09999				

Table 3
Students' use of dictionary for direct and inverse translation.

	Comparison (paired sample *t*-test)				
	M	SD	T	df	p
Direct translation	.0833	.28,031	.000	35	1.
Inverse translation	.0833	.28,031			

Table 4
Students' rating of the level of difficulty of direct and inverse translations.

	Comparison (paired sample *t*-test)				
	M	SD	T	Df	p
Direct translation	3.6389	.86,694	. 1.363	35	.182
Inverse translation	3.4444	.80,868			

Table 5

Use of dictionary for direct translation.

Direct translation	Comparison (paired sample *t*-test)				
	M	SD	T	Df	P
Students of English	.1111	.32,338	−.605	17	.553
Students of Translation	.3056	1.29636			

Table 6

Use of dictionary for inverse translation.

inverse translation	Comparison (paired sample *t*-test				
	M	SD	T	df	P
Students of English	.1111	.32,338	566	17	.579
Students of Translation	.0556	.23,570			

paired-sample *t*-test showed insignificant differences between perceptions of the difficulty of direct and inverse translations, with (t (35) = . 1.363, p < 0.182) (see Table 4).

The second question 'To what extent do students of English and students of translation differ in their performance and dictionary use when undertaking direct and reverse translations? was answered quantitively. Findings revealed differences between the students of translation and the students of English in both direct translation and inverse translation. In the direct translation task, the performance of the students of translation was higher than the performance of the students of English (M = 8.333, SD, 1.15045 vs. M = 7.2500, SD, 1.09999), and they also performed better on the inverse translation (M = 5.5833, SD = 1.47778 vs. M = 4.6944, SD, 1.0999).

The independent sample *t*-test showed statistically significant differences between the performance of students of translation and students of English in both direct translations (t (17) = 11.375, p < 0.05, d = 1.18972) and inverse translation (t (17) = 9.794, p < 0.05, d = 1.30265). These findings indicate that translation students outperformed English students with a large effect size in both translation directions.

In terms of dictionary use, findings revealed that the students of English used dictionaries in both direct translations to a lesser extent. They received the same mean score for both the direct and inverse translations (M = 0.1111, SD = 0.32,338). The students of translation varied in the use of dictionaries for direct translation (M = 0.3056, SD, 1.29636) and inverse translation (M = 0.0556, SD = 0.23,570). However, the independent sample *t*-test showed insignificant differences between the students of English and the students of translation when it came to using a dictionary for direct translations and inverse translations, as shown in Tables 5 and 6 below.

1. The third question, 'Are there statistically significant differences between the students of English and students of translation in perceiving the difficulty of direct and inverse translation?' relates to all participants' perceptions of the degree of difficulty of direct and inverse translation. Findings revealed the high level of difficulty of direct translation compared to inverse translation for both the students of English and translation. As shown in Tables 7 and 8, the independent sample *t*-test indicates insignificant differences in participants' perceptions of the difficulty of direct and inverse translations.

Table 7

Students' perception of the degree of difficulty of direct and inverse translations.

Direct translation	Comparison (paired sample *t*-test)				
	M	SD	t	Df	p
Students of English	3.5556	.70,479	−.546	17	.592
Students of translation	3.7222	1.01782		17	

Table 8

Students' perception of the degree of difficulty of direct and inverse translations.

Inverse translation	Comparison (paired sample *t*-test)				
	M	SD	t	df	p
Students of English	3.5556	.70,479	−1.683	17	.111
Students of translation	3.6111	.84,984			

4.2. Qualitative data

The fourth question, 'What are the problematic areas in relative pronouns' direct and inverse translation?' was answered qualitatively. The qualitative data revealed that EFL students and trainee translators encountered more difficulties with inverse than with direct translation, which are explained below.

4.2.1. Problematic areas in inverse translation

4.2.1.1. Position and selection of relative pronouns. The students' use of literal translation resulted in the wrong selection and use of the relative pronoun. This selection of 'who' as the translation for 'من' and 'الذي' led to incorrect structure and use of the English relative clause. In English, the pronoun 'who' is used to modify the headword and cannot start an English sentence. However, in Arabic, the relative pronouns 'من' and 'الذي' can start an Arabic sentence to express general statements. The students' use of 'who' is incorrect for two reasons.

Firstly, the relative pronoun 'who' cannot start an English sentence to form a relative clause and, secondly, it is used for specifying someone rather than making general statements. The appropriate relative pronoun in this context is 'whoever,' which occupies the initial position in an English sentence and is used for generalizations (see Table 9).

4.2.1.2. Use of gender and dual relative pronouns. The use of 'who' as a translation for 'اللاتي' and 'اللتين' led to loss of meaning in terms of gender and plurality. The relative pronoun 'اللاتي' is plural and feminine, which does not exist in English. Similarly, the relative pronoun 'اللتين' is dual and feminine, which are not denoted by the English equivalent. The translators failed to recognize the need to compensate for the absence of gender, plurality, and duality in English. To address this, they should have included lexes such as females, girls, and ladies, as well as the number two in the case of the dual relative pronoun (see Table 10).

4.2.1.3. Use of resumptive pronouns. The students' reliance on a literal translation led to the inclusion of resumptive pronouns in the English version of the following Arabic statement: 'The team whom I encouraged **it** won'. However, resumptive pronouns are not a grammatical feature in English. In Arabic, it is common to use resumptive pronouns with relative pronouns to refer to the object. However, in English, the relative pronoun alone is used to refer to the same thing, without the addition of 'him' or her' as shown in Table 11.

4.2.1.4. Use of relative pronouns with prepositional verbs or deletion of relative pronouns. The participants' literal translation of the statement "قابلت معلما ناقشت معه" revealed that they mistakenly placed a preposition immediately after the relative pronouns and omitted the relative pronouns altogether. This resulted in an incorrect placement of the relative clause, as seen in their translation: 'I met a teacher whom with I discussed strategies of translation'. The students were unaware of the correct placement of the preposition, so they followed the rules of Arabic grammar, where the preposition comes after the relative pronouns. Additionally, as shown in Table 12, some students replaced the relative pronouns with the conjunction "and".

Table 9
Selection and position of relative pronouns.

Arabic sentences	Students' translations
.من يشعر بالرضا يعيش سعيدا	Who feels satisfied, he who feels, one who feels, hard work always pays off, if you are satisfied
.الذي يفعل الخير يسعد من حوله	The person who does good, he who does good, the one who does good.
.أثق بمن تثق به	I trust who you trust, I trust what you trust, trust those you trust

Table 10
Use of gender.

The Arabic sentence	Students' translations
.اللاتي يعملن بجد يتفوقن	Who works hard excel, those who work hard, the females who work hard, those who work hard, that girl who
كرم العميد الطالبتين اللتين حصلتا على مرتبة الشرف	The dean honored the students, and the dean honored the two students.

Table 11
Use of resumptive pronouns.

Arabic sentence	Students' translations
.فاز فريق الصقر الذي أشجعه	The team whom I encouraged it won. I met a teacher who with I discussed with <u>him</u> strategies for translation.

Table 12

Use of relative pronouns with prepositional verbs.

Arabic sentence	Students' ranslations
قابلت معلما ناقشت معه استراتيجيات الترجمة.	I met a teacher, <u>whom with</u> I discussed strategies of translation strategies, I met a teacher, <u>and I discussed</u> with him …, I met with a teacher and discussed translation strategies with him
التحقت بالكلية التي تدرس فيها.	I joined the college

Table 13

Use of possessive pronouns.

Arabic statements	Students' translations
صادفت صديقا تعطلت سيارته.	I met a teacher his car broke down, I come across a friend his friend broke down.

Table 14

Unnecessary addition of the relative pronouns.

English statements	Students' translations
The phone which has the most features is also the most expensive	الجوال الذي تكون ميزاته تكون الأغلى ثمنا.
There was only one person to whom the old man spoke.	كان هناك شخص واحد من تكلم الى الرجل
Spring is the season when I'm happiest	فصل الربيع الذي أكون فيه الأسعد

Table 15

Wrong selection of relative pronouns.

English statement	Students' translations
Whoever uprooted that tree ought to be ashamed of themselves.	كل من اقتلع الشجرة، أيا كان من اقتلع الشجرة

4.2.1.5. Use of possessive pronouns. Results revealed that the students opted for a literal translation, translating "الذي" as "who" and "سيارته" as 'his car' or 'who car.' The students' insufficient knowledge or lack of practice in English grammar may have prevented them from accurately translating Arabic possessive relative pronouns into English. The students' translations indicated that they may have confused the use of the relative possessive pronoun 'whose' and the personal pronoun 'his'. See Table 13.

4.2.2. Problematic areas in direct translation

4.2.2.1. Unnecessary addition of the relative pronouns. One of the most common errors observed in the direct translations was the unnecessary inclusion of the relative pronoun 'الذي' (al-ladhi) in the translated sentence, which resulted from the use of a literal translation. Consequently, the translated sentence becomes redundant and overly wordy. The issue arises when students attempt to mirror the sentence structure of the original English sentence, where the relative pronoun is obligatory. However, in Arabic, the relative pronoun الذي is often omitted when the antecedent is the subject of the relative clause. By mistakenly including 'الذي' in their translations became redundant (see Table 14).

4.2.2.2. Wrong selection of relative pronouns. The students translated the word 'whoever' into Arabic literally. However, this literal translation resulted in redundancy in the translated text. In Arabic, the word 'whoever' can be translated as 'من' (pronounced as "man"). This word is used in Arabic to make general statements or to refer to an indefinite person or group of people, which functions similarly to 'whoever' in English.

However, it seems that the students may have misunderstood the usage of 'whoever' and translated it literally into Arabic, which produced redundancy and awkwardness in the target language (see Table 15).

5. Discussion

This study explored the difference between direct and inverse translations based on the hypothesis that inverse translation is more challenging than direct translation. Then, the study measured the performance of two groups of students (students of English and students of translation). when tasked with direct and inverse translations. Results showed statistically significant differences between direct and inverse translation, indicating that inverse translation is more challenging than direct translation. Statistically significant differences were found between the performance of the students of translation and that of the students of English in both direct and inverse translation, demonstrating that the translation students outperformed the students of English in both types of translation. Finally, despite the students' low performance in inverse translation, they perceived the difficulty level of both direct and inverse translation as being somewhat similar. These findings are discussed below.

The paired-sample *t*-test showed statistically significant differences between direct and inverse translation with large effect size, indicating that inverse translation is more challenging than direct translation. The results revealed that inverse translation is a

problematic area of translation for both the students of translation and the students of English. The students could not translate the Arabic relative clauses into English appropriately. When rendering the Arabic relative clauses into English, they violated English grammar rules (wrong selection of relative pronouns, incorrect word order, unnecessary addition of relative pronouns, etc.). Also, when rendering the Arabic relative pronouns into English, there was some loss of meaning due to the deletion of Arabic dual–based relative pronouns. These errors might be due to the lack of training in transferring different structures of relative clauses in English and Arabic. It was found that direct translation was easier, most likely because of the students' knowledge of their mother tongue. Moreover, translation courses tend to focus more on direct translation, whereas inverse translation is not given the attention it deserves. Hence, students should be given more opportunities to practice the inverse translation of relative pronouns, focusing on translation tasks that require transferring structural differences from L2 to L1. The results of this current study align with those of [9, 30]; which found that inverse translation is more challenging than direct translation. Also, Pavlović and Jensen 30 found that inverse translation is more challenging than direct translation in some respects. In his study of metaphor [9], found that directionality significantly affects the relationship between the processing of the ST and that of the TT. Abuissac (2016) studied the translation of relative pronouns and found that direct translation is easy for translation students. Translation teachers should include direct and inverse translation in the syllabi of translation programs to ensure that these two directions are covered in the translation course.

The students' linguistic competence in the ST and TT should be covered in the syllabus and training methods. Linguistic competence is the foundation of other competencies Drawing on theory of Linguistic theory of translation is essential to the development of students' bilingual competence. [17] stresses the importance of linguistic competence, arguing that languages have different rules and structures for forming sentences, organizing information, and expressing ideas. These variations can affect the way information is conveyed and understood. Therefore, when translating, the translator needs to navigate these differences and make choices to ensure that the meaning of the message is rendered accurately into the TL.

One common challenge arises when the grammatical structure of the source language does not have a direct equivalent in the target language, which can lead to the modification of the information expressed in the ST. For example, a specific word order in the source language may need to be rearranged in the target language to ensure grammatical correctness. Also, gender and plurality in Arabic relative pronouns do not have equivalents in English, which requires addition in the translation to compensate for the loss of meaning.

The students of translation outperformed students of English in both direct and inverse translation, which may be due to the effect of a translation training program on the translation students' performance. However, inverse translation was more challenging for all participants. According to the findings, the students of English performed well in direct translation, indicating that the English language could help students to translate adequately, especially in terms of sentence structure. This finding aligns with [31] who conducted a study on the classification of translation strategies used by students of English. In an experimental study, Robert et al. [32] compared the proficiency of translators and revisers in the revision process, and their use of dictionaries and websites. They discovered that the tools used by translators and revisers varied. Those who are revising use tools and resources more frequently than translators and devote more time queries for the purpose of clarification.

The findings revealed that the students did not depend on dictionaries for both the direct and inverse translations, which could indicate that both groups of students understood the meaning of relative pronouns. However, they may not realize that monolingual dictionaries could help them with the appropriate use of the relative clause.

Regarding the rating of the level of difficulty, the students rated inverse translation as 'somewhat difficult,' while their scores for the inverse translation averaged 5 out of 10, which may show the students' lack of awareness of the problematic areas in their translation. This finding aligns with [12]; who found no substantial differences in the self-concepts of the two groups' views of direct and inverse translation protocols. However, in this study, the students' rating did not align with their poor performance in inverse translation.

The translations rendered by the participants indicated that the translation of relative pronouns in both direct and inverse translations was challenging. The findings showed the following critical areas in inverse translation that need attention.

a) The position of relative pronouns
b) Selection of the appropriate relative pronouns in English
c) Use of gender
d) Use of relative pronouns with prepositional verbs
e) Use of duality in relative pronouns
f) Use of possessive relative pronouns
g) Use of resumptive pronouns

The results also showed few frequent hindrances in direct translation (unnecessary addition or incorrect selection of relative pronouns). Translation teachers could use the list above when teaching translation strategies, and include them in them in the curriculum. Teachers of translation should provide both direct and inverse translation tasks that demonstrate the distinctions between the SL and TL, explaining similar and different aspects of grammatical rules in general, and the relative pronouns specifically, as they are used in the mother tongue and the TL. Additionally, it is recommended that teachers explain the rule governing the use of relative pronouns and give students ample opportunities to apply the rules in practice.This recommendation aligns with [19]; who recommended teaching contrastive linguistics when teaching a translation course.

The findings revealed the students' reliance on literal translation, which is appropriate when there are similarities between the ST and TT structures. However, when there are differences, there can be loss of meaning in translation, and redundancy. The use of the literal translation approach depends on the similarities or dissimilarities between the grammatical structures of the source text (ST)

and the target text (TT). When the structures are similar, a literal translation can effectively convey the meaning without loss or redundancy. However, significant differences in structure can result in translation loss and awkward phrasing. Therefore, translators should recognize differences between St and TT structures and make appropriate adjustments to maintain clarity, coherence, and naturalness in the target language.

6. Conclusion

This study investigated the performance of the undergraduates in the Department of English and Translation in terms of their direct and inverse translation of relativization using a translation task and a questionnaire. It was found that the inverse translation of relative clauses (L1 to L2) is more challenging than direct translation (L2 to L1) for both translation and English students, indicating gaps in students' bilingual competence, viz. L1 to L2. It is recommended that translation training programs address linguistic competence in both the source text (ST) and target text (TT), equipping students with appropriate translation strategies ranging from literal translation to free translation. The study highlights the need to give due attention to inverse translation in translation training programs. To assist students in overcoming such obstacles in practice, translation tasks should be designed based on the differences and similarities of L2 and L1. One limitation of the study is the small sample of statements. A large sample of statements on relativization could help to make findings more generalizable. The small sample of participants used for this study is due to the research's specific location and the voluntary nature of participation, both of which factors should be taken into consideration in future research. While this study is concerned with assessing students' performance in direct and inverse translation, it did not examine in depth the cognitive processes involved. Consequently, future research in this area should consider using eye-tracking software to observe students' behavior during direct and inverse translation. Finally, because the study focuses on bidirectionality in relativization, future research should include other linguistic features (tense, aspect, conditional clauses, among others) to explore what is more problematic for trainee translators (direct or inverse translation).

Data availability statement

Data included in article/supp. material/.

Ethics statement

The authors obtained ethical approval (Reference: 44-30-13376-DS) from Najran University's Research Ethics Committee, ensuring adherence to ethical standards, including informed consent, maintaining confidentiality, and complying with regulations.

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CRediT authorship contribution statement

Mutahar Qassem: Conceptualization, Data curation, Formal analysis, Funding acquisition, Investigation, Methodology, Validation, Writing – original draft. **Sami Algouzi:** Project administration, Resources, Supervision, Writing – review & editing.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.heliyon.2023.e21323.

References

[1] M. Qassem, Translation strategy and procedure analysis: a cultural perspective, Asia Pacific Translation and Intercultural Studies 8 (3) (2021) 300–319, https://doi.org/10.1080/23306343.2021.2003511.

[2] A. Beeby, The direction of translation: directionality, in: M. Baker (Ed.), Routledge Encyclopedia of Translation Studies, Routledge, London and New York, 1998, pp. 63–67.

[3] S. Horcas-Rufián, R. Kelly, Inverse (A-B/C) translation education in Spain under the EHEA, Perspectives 28 (2) (2020) 300–319, https://doi.org/10.1080/0907676X.2019.1684529.

[4] A.H. Albir, Researching Translation Competence by PACTE Group, vol. 127, John Benjamins Publishing Company, 2017 ,.

[5] PACTE, Building a translation competence model, in: F. Alves (Ed.), Triangulating Translation: Perspectives in Process Oriented Research, John Benjamins, Amsterdam, 2003, pp. 43–66.

[6] S. Corder, Error Analysis and Interlanguage, Oxford University Press, Oxford, 1981.

[7] E. Nida, Towards a Science of Translation, J. Brill, 1964.

[8] P. Newmark, A Textbook of Translation, Prentice-Hall, 1988.

[9] Y. Wang, The impact of directionality on cognitive patterns, in: R. Muñoz, S. Sanjun, D. Li (Eds.), Advances in Cognitive Translation, Springer Nature, Singapore, 2021, pp. 201–220.

[10] F. Alves, I. Pagano & Silva, A new window on translators' cognitive activity: methodological issues in the combined use of eye tracking keylogging and retrospective protocols, in: I. Mees, F. Alves, S. Göpferich (Eds.), Methodology Technology and Innovation in Translation Process Research, Samfundslitteratu, Copenhagen, 2009, pp. 268–269.

[11] B. Whyatt, O. Witczak, E. Tomczak, Information behavior in bidirectional translators: focus on online resources, Interpreter Transl. Train. (ITT) 15 (2) (2021) 154–171, https://doi.org/10.1080/1750399X.2020.1856023.

[12] A. Heeb, Professional translators' self-concepts and directionality: indications from translation process research, Journal of Specialized Translation (25) (2016) 74–88.

[13] R. Jakobson, On linguistic aspects of translation, in: L. Venuti (Ed.), The Translation Studies Reader, Routledge, London, 2004, pp. 138–143.

[14] K. Reiss, Translation Criticism- The Potentials and Limitations: Categories and Criteria for Translation Quality Assessment, E. F. Rhodes (trans.), St. Jerome Publishing, 1971, 2000.

[15] K. Reiss, H. Vermeer, Groundwork for a General Theory of Translation, Niemeyer (1984).

[16] C. Nord, Translating as a Purposeful Activity Functionalist Approaches Explained, St Jerome, 1997.

[17] M. Baker, In Other Words: A Coursebook to Translation Studies, Routledge, 2011.

[18] A. Al-Oqaili, The Relative Clause in English and Arabic, Science press, Riyadh, 1990 (Arabic).

[19] M. Zagood, A Contrastive Study of Relativization in English and Arabic with Reference to Translation Pedagogy (Unpublished Doctorate Thesis), Durham University, Durham, 2012.

[20] Z. Ibrahim, N. Kassabgy, S. Aydeliott, Diversity in Language: Contrastive Studies in English and Arabic Theoretical, Applied Linguistics, American University in Cairo, 2000 (AUC).

[21] N. Kharma, A. Hajjaj, Use of the mother tongue in the ESL classroom, Int. Rev. Appl. Ling. 27 (3) (1989) 223–235. .

[22] A. Al-Oqaili, The Relative Clause in English and Arabic, Science press (Arabic), Riyadh, 1990.

[23] E. Nida, Language and Culture: Contexts in Translating, Shanghai Foreign Language Education Press, 2001.

[24] H. El-Farahaty, Arabic-English-Arabic Legal Translation, Routledge, London, 2015.

[25] J.P. Vinay, J. Darbelnet, Comparative Stylistics of French and English: A Methodology for Translation, John Benjamins Publishing Company, Amsterdam/ Philadelphia, PA, 1995.

[26] J. Witzel, N. Witzel, Relative clause processing in L1 and L2 English, Journal of Second Language Studies 4 (2) (2021) 327–352, https://doi.org/10.1075/ jsls.21008.wit.

[27] K. Klaudy, K. Károly, Implicitation in translation: empirical evidence for operational asymmetry in translation, Across Lang. Cult. 6 (1) (2005) 13–28, https:// doi.org/10.1556/acr.6.2005.1.2.

[28] S. Baek, Locus of difficulty in processing L2 English object relative clauses: a study with Korean university students, Lang. Ling. 83 (2019) 93–120.

[29] S. Abuisaac, The Translation of Relative Clauses from Arabic to English and Vice Versa, PhD diss., University of Malaya, Malaysia, 2016.

[30] N. Pavlović, K. Jensen, Eye Tracking translation directionality, in: A. Pym, A. Perekrestenko (Eds.), Translation Research Projects 2(101–119), Intercultural Studies Group, Tarragona, 2009.

[31] H. Krings, Translation problems and translation strategies of advanced German learners of French, in: J. House, S. Blum-Kulka (Eds.), Interlingual and Intercultural Communication, Gunter Narr, Tubingen, 1986.

[32] I. Robert, A. Terryn, J. Ureel, A. Remael, Conceptualising translation revision competence: A pilot study on the 'tools and research' subcompetence, J. Spec. Transl. 2017 (28) (2017) 293–316.

[33] J. Richards, A non-contrastive approach to error analysis, in: J. Richards (Ed.), Error Analysis: Perspectives of Second Language Acquisition, Longman, London, 1992, pp. 172–189.

[34] C. Mellinger, T. Hanson, Quantitative Research Methods in Translation and Interpreting Studies, Routledge, New York, 2017.