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# Training transversal competences in a bachelor's degree in translation and interpreting: preliminary evidence from a clinical trial

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## ABSTRACT

Transversal competences are now essential not only for employability but for the well-being of students, and thus for society as a whole. However, these competences are not commonly taught or researched as part of higher education degree programmes. This evidently leads to a gap between ideal teaching goals and what students actually learn in their undergraduate studies. To meet this need, a psychoeducational intervention was designed and implemented in an undergraduate programme in translation and interpreting within the framework of a teaching innovation project. The impact of this intervention was tested on transversal competences such as emotional intelligence and regulation, creativity, psychological distress, and cultural intelligence, among others. This parallel exploratory study compared the effectiveness of two mindfulness-based programmes. In both mindfulness-based training programmes, the preliminary results seemed to indicate an improvement in these transversal competences. Limitations of the study were the design, sample size, and the restrictions imposed by the COVID-19 pandemic. The results of our study led to recommendations for degree programme design as well as a platform for discussion and debate on the relationship between higher education, competence-based training, and social demands. The clinical trial was registered with [www.clinicaltrials.gov](http://www.clinicaltrials.gov) (NCT04392869).

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Transversal competences; clinical trial; curriculum design; employability; translator and interpreter training

## 1. Introduction

Different types of skills have always been necessary to successfully manage academic, professional, and personal contexts. For decades, cognitive and academic competences (*hard skills*) have played an essential role in undergraduate training. Even though non-academic and generic competences have not been as popular as other more academic contents (Ergas 2017), these new *soft skills* are now attracting the attention of researchers, teachers, and employers as an important predictor of employability (Dubey and Tiwari 2020). Competences such as psychological flexibility, teamwork, emotional intelligence, and stress management, among others, are now in great demand in the labour market,

and have gradually become more central in undergraduate training if students are to be adequately prepared for their professional future (Succi and Canovi 2019).

It has long been asserted by researchers and teachers that ‘a degree is not enough’ (Pereira, Vilas-Boas, and Rebelo 2020). Even students have concerns about credentialism and the declining value of their university degree in a challenging labour market (Jackson and Tomlinson 2020). It seems that despite their academic preparation, they lack the competences that will allow them to achieve an optimal cognitive, personal and professional development and performance (Ramasubramanian 2017; Elena et al. 2018). It is hardly surprising that companies now emphasise the importance of these previously mentioned soft skills for optimal performance in the workplace (Burning Glass Technologies 2019). In translation studies (TS), mounting evidence highlights the relationship between these soft skills and academic, professional, and personal achievement (Hubscher-Davidson 2018). In fact, many scholars and practitioners are calling for a redefinition of TS characterised by a more transversal and multidisciplinary approach (Gambier and Kasperç 2021). As a consequence, a re-examination of the skill set needed in this new configuration is necessary to better equip the next generation of translators and interpreters both professionally and personally (Krajcso 2018; Rongjie 2021).

Based on these considerations, our assumption is that competences such as creativity, self-regulation, and creativity can be studied, typified, adapted, integrated, and taught. Still another assumption is that university students can acquire ‘soft competences’ or tools, such as mindfulness, which can be combined with academic competences to enhance their personal well-being and academic and professional performance. Researchers, universities, and public and private institutions are already working to address this issue (Fundación Telefónica 2020).

## **2. Mindfulness as a competence-based intervention in academia: the case of translation studies**

Mindfulness is commonly defined as ‘the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment’ (Kabat-Zinn 2003, 145). Interest in this meditative practice has grown exponentially in recent years, with remarkable results in fields as diverse as sports, engineering, and education (Scott-Hamilton, Schutte, and Brown 2016; Valero-Mora et al. 2015; McGeechan et al. 2018). It has had a greater impact in clinical settings, where most people who participate in the programme show a lower physiological response to stressful situations (Tang et al. 2007; Tang and Posner 2014). Even short mindfulness training sessions are enough to produce both functional and morphological changes in the brain (Tang, Hölzel, and Posner 2015). However, as some claim, its usefulness goes beyond the instrumental goals of improved health and well-being. As a result, its definition can be expanded to include the development of soft skills that lead to human flourishing where both personal and social transformation is possible (Sellman and Buttarazzi 2019).

In the higher education context, mindfulness has yielded promising yet inconsistent results that need further research. For example, some studies have found no effects of mindfulness meditation on academic achievement (Baranski and Was 2020). However, mindfulness has been found to improve concentration (Tobin 2018), empathy, active

listening, emotional support (Jones, Bodie, and Hughes 2019), academic performance (Bennett et al. 2018), stress resilience, overall well-being (Ingram, Breen, and Van Rhijn 2017), creativity (Hensley 2020), and executive control (Cásedas et al. 2020), among others.

In the field of transversal competence curriculum design, studies and projects such as Tuning (Wagenaar 2019), DARE+ (Yarosh, Serbati, and Seery 2017) and CALOHEE (CALOHEE project 2017), have also incorporated these non-academic competences in the higher education context. These studies envision non-academic skills as constructs that are not only challenging to integrate and master, but also need further investment, research, and training (Hora et al. 2020). In the field of TS, this psychological capital is integrated in the most relevant translation competence models proposed by translation scholars, such as the EMT (European Master's in Translation), PACTE, and NAATI (the national standards and certifying authority for translators and interpreters in Australia) (PACTE group 2018).

Research and training in affective and cognitive processes are gathering momentum in TS (Rojo-López 2017). In the case of translation, translator performance and training has been found to correlate with psychological traits such as empathy, creativity, and locus of control (Rojo-López and Ramos 2016; Hague 2015; Atkinson 2014). Self-regulation, self-efficacy, self-confidence, and creativity have also been found to have a significant impact on task performance (Cifuentes-Férez and Meseguer-Cutillas 2018; Haro and Kiraly 2019; Malmkjær 2020; Zhenming, Zheng, and Wang 2021). Moreover, emotional intelligence and flexibility have been found to be key factors in translator training (Bontempo and Napier 2011; Lehka-Paul and Whyatt 2016; Rodríguez de Céspedes 2017). Accordingly, their incorporation in degree curricula could have a direct impact on translation and interpreting performance (Hubscher-Davidson 2018) as well as on the employability of translation and interpreting (T&I) graduates (Rodríguez de Céspedes 2017).

Of particular relevance in TS is the cultural intelligence construct. Deemed as one of the sub-competences of translation competence in the PACTE model, it is closely related to the interpersonal dimension, and has close links to metacognitive traits such as flexibility or empathy (Hurtado-Albir and Olalla-Soler 2016). Its pedagogical implications for course design have been discussed and various studies have started to move towards the integration of this competence into the translation curriculum (Xiangdong 2016; Olalla-Soler 2017).

In the case of interpreting, because of the nature of the activity itself, there has been a great deal of research and training directly related to transversal competences. Examples include research on cooperativeness (Hiltunen, Mäntyranta, and Määttänen 2018), self-care (Crezee 2015), psychological skill (Atkinson and Crezee 2014), emotional stability (Bontempo and Napier 2011), and empathy (Krystallidou et al. 2018). Studies on empathy are of particular relevance because they have shown that empathy helps interpreters to better understand the meaning of the speaker, which evidently enhances interpreter performance (Korpala and Jasielska 2019).

Similarly, constructs such as cognitive flexibility and motivation have been found to predict better academic performance and aptitude for interpreting (Timarová and Salaets 2011; Bontempo and Napier 2011). In turn, emotional regulation, focused attention, and shared cognitive effort have been found to predict interpreter competence and aptitude

(Bontempo and Napier 2011; Bontempo and Malcolm 2012) and are thus important aspects of translator and interpreter training (Atkinson 2014). Studies on the link between interpreting and attention are of special interest (Julia et al. 2015; Dong and Zhong 2017) because of the effect of mindfulness training on attention-related cognitive functions such as working memory and executive control (Semple 2010; Cásedas et al. 2020).

Though many studies recommend incorporating these competences in T&I degree curricula as a way to fill the ‘skills gap’ (Moore and Morton 2017) between the university and the labour market (Álvarez-Álvarez and Arnáiz-Uzquiza 2017), competence-based interventions such as mindfulness are still infrequent within the context of TS, and methodologically sound empirical studies are needed (Hubscher-Davidson and Lehr 2021). In order to bridge the gap between the university and the labour market (Garner et al. 2019), researchers underline the need for research and training in these competences in the field of TS (Álvarez-Álvarez and Arnáiz-Uzquiza 2017). This would not only require a change of paradigm (Haro-Soler and Kiraly 2019) but would also call for an interdisciplinary effort at all levels (Hubscher-Davidson 2018).

### **3. The teaching innovation project CRAFT.FTI**

CRAFT.FTI is a teaching innovation project, which stems from the interaction of different stakeholders both within and outside of the University of Granada. Based on the malleability of non-academic competences, which as previously discussed can be learned and taught, experts in soft skills, students, administrative and support staff, teaching and research staff and social stakeholders have worked together to offer a mindfulness-based elective course worth 4 ECTS (credits in the European Credit Transfer and Accumulation System). The course was offered in the second semester of the 2020–2021 academic year at the Faculty of Translation and Interpreting of the University of Granada (Spain).

Simultaneously, an exploratory study was designed to empirically test the impact of this psycho-educational intervention on some of the transversal skills known to be relevant for T&I students. In particular, the following constructs were assessed: (i) dispositional mindfulness (i.e. the ability to attend to and be aware of present-moment experience with an accepting attitude); (ii) mind-wandering (i. e., the tendency for the mind to deviate from the task at hand and get distracted with self-generated thoughts or memories); (iii) emotional regulation; (iv) psychological distress (including depression, anxiety and stress); (v) emotional intelligence (i.e., the ability to identify and regulate our own emotions as well as to recognise and empathise with the others’ feelings and thoughts); (vi) cultural intelligence (i.e., the individual’s capability to function and manage effectively in culturally diverse settings); (vii) creativity; and (viii) motivation and learning strategies. While we also assessed multiple indices of attentional performance using a cognitive-behavioural task (the ANTI-Vea; Luna et al. 2018), these data are beyond the scope of this preliminary study and will be reported elsewhere.

As part of this research, two mindfulness-based programmes were assessed: the CRAFT programme (Posadas de Julián 2017) and the Mindfulness-Based Stress Reduction programme (MBSR; Kabat-Zinn 2003). The objective of the CRAFT programme is to raise student awareness of their inner agency to increase their

health and overall well-being. This programme is based on five consecutive modules aimed at enhancing Awareness (*Consciencia* in Spanish), Relaxation and regulation, Attention, Bliss (*Felicidad* in Spanish), and Transcendence, hence the name ‘CRAFT’. It had been previously implemented in other higher education institutions (Posadas de Julián 2019; Bartos et al. 2021). However, this is the first time that it has been applied in a university context and its impact measured.

In contrast, the MBSR is an evidence-based, secular (i.e. not of a religious nature) programme that was originally developed for clinical purposes, and which has also reported positive results in non-clinical populations. This programme cultivates awareness of the present moment and non-judgemental attention while promoting stress reduction through a range of formal and informal practices. The MBSR programme has been successfully implemented in educational contexts, and has been shown to improve the well-being and academic achievement of students (Bennett and Dorjee 2016).

The protocol for this study was registered on [clinicaltrials.gov](https://clinicaltrials.gov), a publicly available registry database run by the United States National Library of Medicine (NLM) at the National Institutes of Health (NIH). Both programmes were taught by officially accredited instructors at the Faculty of Translation and Interpreting. Their description and contrastively organised contents can be browsed and downloaded from the [clinicaltrials.gov](https://clinicaltrials.gov) page, under the Study Record Detail (<https://clinicaltrials.gov/ct2/show/NCT04392869>).

The main objective of the study was to ascertain whether participating in a mindfulness-based course of 4 ECTS credits could improve the non-academic skills<sup>1</sup> of translation students. Based on previous research conducted in other populations, our initial hypothesis was that this course would improve most of the competences relevant for T&I students. More specifically, it would improve dispositional mindfulness and cognitive- and emotionally-related competences, such as creativity and emotional intelligence. In contrast, it was predicted that the course would reduce psychological distress and mind-wandering.

Regarding emotional regulation, recent research shows that not all forms of emotional regulation are equally beneficial (Cutuli 2014). For example, cognitive reappraisal (CR; i.e., changing the way one thinks about emotion-eliciting events) is considered most effective for managing negative emotions, whereas expressive suppression (ES; i.e., attempting to hide, inhibit, or reduce ongoing emotion-expressive behaviour) is regarded as maladaptive and related to lower self-esteem and higher experience of negative emotions. Within the context of a recent feasibility study, preliminary evidence indicated an improvement in cognitive reappraisal and a reduction in expressive suppression emotional regulation abilities following a CRAFT-based course in a group of music students (Bartos et al. 2022). To the best of our knowledge, this study is the first to examine whether mindfulness-based interventions can differentially affect these two forms of emotional regulation in the context of TS. Regarding cultural intelligence, we believe that our study is also the first to address whether this competence can be improved with a mindfulness-based intervention. Since cultural intelligence requires self-regulation and empathetic abilities, it was also expected to be enhanced by mindfulness-based training.

Another objective of the study was to compare the effects of two mindfulness-based programmes: CRAFT vs. MBSR. Since both programmes train various common abilities,

but have partially different methods and content, we explored whether these programmes differed in their potential to improve any of the previously mentioned competences. For example, since the CRAFT programme focuses on training creativity more than the MBSR programme does, the second hypothesis was that the CRAFT programme would have a stronger effect on creativity than the MBSR.

Finally, the third objective of the study was, in case its results proved to be both statistically and practically significant, to transfer its outcomes and conclusions to a broader audience by reflecting on further steps, and scaling up.

#### **4. Materials and methods**

Since it was only possible to target a limited number of students, we decided to limit our sample population to freshmen and seniors, in other words, to university students in the first and fourth year of the degree programme. The freshmen would allow us to have a prolonged academic performance follow-up and the seniors would make it possible to intersect non-academic competence outcomes with other variables such as internationalisation or maturity. Informative sessions were organised where students were given detailed information pertaining to the course and study, and the possibility to participate in either of the two. Students were informed of their right to refuse to participate or withdraw from the study at any time without penalty or explanation. They were also told that their participation in the study would not be related to either their marks in the degree programme or the final mark of the course. In order to compensate students for their time participating in the study, a discount on the original ECTS credit price was offered.

Instructors were neither informed of which students were participating in the study nor of the specific research hypotheses and expected outcome measures. Although it was not possible to blindly assign participants to the groups, they were not informed of the specific research hypothesis. None of the participants in the study were students enrolled in any of the classes given by the researchers during the time of the study.

The informed consent and outcome measures were administered through LimeSurvey, an open-source online survey tool licenced by the University of Granada, specially designed to develop, publish, and collect survey responses. For confidentiality purposes, the participants were asked to self-generate an alphanumeric code to be provided in all testing sessions during the study.

Data collection was done before and after the intervention, with an interval of four months between each phase. Data gathering lasted for approximately 15 days. At pre-intervention, the only face-to-face outcome measure, the test measuring creativity, was administered by an independent researcher, who had no knowledge of the hypotheses of the study. Due to the COVID-19 pandemic, it was adapted at post-intervention to be administered online.

##### **4.1. Adaptation of the course to the COVID-19 emergency situation**

In the third week of the course, because of the enforced lockdown resulting from the COVID-19 pandemic, the content and methodology of the study had to be adapted.



Classes shifted from face-to-face to online, and were extended from 8 to 12 weeks with a total of 40 hours of direct instruction.

## 4.2. Participants

A sample of 62 students took part in the study. Participants were asked to complete the baseline evaluation that included several questionnaires and performance-based tasks as well as an online socio-demographic questionnaire to determine eligibility.

Inclusion criteria for the participants were the following: (1) subjects had to be enrolled either in the first or fourth year of any of the degree programmes at the Faculty of Translation and Interpreting of the University of Granada (Spain); (2) subjects could not have participated in any international exchange in order to assure face-to-face participation in the programme.

Exclusion criteria were the following: (1) subjects could not be suffering from any psychiatric disorder; (2) subjects must not have received any prior formal meditation training. Data from five participants were excluded because they did not meet these criteria. This left a total of 57 participants that were randomly allocated to either MBSR (28 participants) or CRAFT (29 participants) groups. The randomisation schedule was done by an independent researcher and concealed from the study administrators. It was computer-generated and used a random number generator, at a ratio of 1:1. To ensure a balanced proportion of freshmen and seniors in each group, the course-year variable was blocked from the randomisation process.

Those participants that left the course and missed more than 20% of the programme sessions were excluded from analyses (five from the MBSR group and five from the CRAFT group). Finally, some participants did not complete the two assessment sessions, and thus could not be included in the analyses. More specifically, five from the MBSR group did not complete any measure at the post-intervention assessment session and were excluded from all analyses. One participant from the CRAFT group did not complete the pre-intervention session for the creativity test, CREA, and was not included in this test analysis.

In addition, at a later stage, the freshmen and seniors who were not involved in any of the mindfulness-based courses were also invited to participate in the study because it was our intention to form a passive control group. Given their late recruitment, they could not undergo the randomisation process like the experimental groups. Participants completing data collection were to be compensated with two movie tickets. Nevertheless, because of COVID restrictions, the equivalent in euros was finally granted.

Thirteen control participants thus agreed to participate, ten of whom met the selection criteria. Of these, five participants did not complete the post-intervention test session and/or mistakenly introduced different codes at the pre- and- post-intervention test sessions. As a result, they could not be included in the final control sample. Since the statistical power rendered by the limited final sample size of the control group (five participants) was insufficient to reliably conduct our planned analysis, the control group was finally excluded from the study.

The final population sample consisted of 24 (23 for the CREA test) participants from the CRAFT group (mean age = 19.35 years,  $SD = 2$ ; 20 females; 18 freshmen and 6 seniors), and 18 participants from the MBSR group (mean age = 20.44 years,  $SD = 4.5$ ; 12



females; 11 freshmen and 7 seniors). All participants were treated in accordance with the ethical principles of the 1964 Declaration of Helsinki. The study was approved by the Ethics Committee on Human Research of the University of Granada (867/CEIH/2019; 992/CEIH/2019; 1140/CEIH/2020).

### 4.3. Measures

Most of the psychometric tests selected were validated for the European Spanish sample (with the exception of the Mind-Wandering questionnaire, which was translated and validated by one of the authors [LC]), and met reliability standards. The questionnaires took approximately 60 minutes to complete and remained online for 15 days each time they were launched. The primary outcome measures were the following:

- To assess dispositional mindfulness, we used the Five Facets Mindfulness Questionnaire (FFMQ; Spanish validation by Cebolla et al. 2012). It consists of 39 items, and measures the following mindfulness-related traits: (i) Observing (being aware of emotions, sensations and thoughts); (ii) Describing (being able to label emotions, sensations and thoughts using words); (iii) Acting with awareness (being focused on present-moment activities as opposed to behaving reflexively); (iv) Non-judging of inner experience (being able to appraise thoughts and feelings with a non-evaluative attitude); (v) Non-reactivity to inner experience (being able to experience thoughts and emotions without being caught up by them). Items are rated on a 5-point Likert scale, with 1 being 'never or very rarely true' and 5, 'very often or always true'.
- The Emotion Regulation Questionnaire (ERQ; Spanish validation by Rosario et al. 2013) is a 10-item self-report scale that assesses two emotion regulation strategies, cognitive reappraisal (CR) and expressive suppression (ES) strategies. Items are rated on a 7-point Likert scale, with 1 being 'I strongly disagree' and 7, 'I totally agree'.
- To measure psychological distress, we used the Depression, Anxiety, Stress Scale (DASS21; Spanish validation by Bados, Solanas, and Andrés 2005) which is a 21-item self-report questionnaire measuring psychological stress, comprised by three subscales of 7 items each, assessing depression, stress and anxiety, respectively. Items are rated on a 4-point Likert scale, with 0 being 'not at all true of me' and 3, 'very true of me'.
- To measure emotional intelligence (EI), we administered the Trait Emotional Intelligence Questionnaire Short form (TEIQue-SF; Spanish validation by Laborde, Allen, and Guillén 2016), a 30-item self-report questionnaire where respondents rate a series of statements on a 7-point Likert scale, with 1 being 'I strongly disagree' and 7, 'I totally agree'. A global score was computed, with higher scores representing higher levels of trait EI.

- To assess cultural intelligence, we used the Cultural Intelligence Scale (CQS; Spanish validation by Moyano et al. 2015), a 20-item self-report questionnaire. Apart from the global score, we obtained scores for the four subcomponents identified by the scale: Metacognitive, Cognitive, Motivational, and Behavioural components. Respondents rate a series of statements on a 7-point Likert scale, with 1 being ‘I strongly disagree’ and 7, ‘I totally agree’.
- To measure mind-wandering, we used the Mind-Wandering Deliberate and Spontaneous scales (MW-D/MW-S). These scales comprise four items each and assess inattention to or distraction from the task at hand due to voluntary and involuntary engagement in stimulus-independent thoughts, respectively (Cásedas et al. 2022). Items on this questionnaire are rated on a 7-point Likert scale, with 1 being ‘rarely’ and 7, ‘a lot’ except for the third item of the Spontaneous subscale (1 = ‘almost never’ to 7 = ‘almost always’) and the third item of the Deliberate subscale (1 = ‘not at all true’ to 7 = ‘very true’).
- To assess creativity (i.e., creative intelligence), we used the performance-based CREA test developed in a Spanish population (Berná et al. 2003) that asks participants to generate as many questions as possible about a visual stimulus.
- To measure motivation and learning strategies, we included the Motivated Strategies for Learning Questionnaire (MSLQ; Spanish validation by Martínez-Fernández and Galán 2000) is a 52-item self-report scale. Items are rated on a 5-point Likert scale, with 1 being ‘I strongly disagree’ and 5, ‘I totally agree’.
- To measure psychological distress, we used the Depression, Anxiety, Stress Scale (DASS21; Spanish validation by Bados, Solanas, and Andrés 2005) which is a 21-item self-report questionnaire measuring psychological stress, comprised by three subscales of 7 items each, assessing depression, stress and anxiety, respectively. Items are rated on a 4-point Likert scale, with 0 being ‘not at all true of me’ and 3, ‘very true of me’.

Finally, at the end of the course, participants were invited to rate their satisfaction with the course on a 7-point Likert scale, with 1 being ‘Not at all satisfied’ and 7, ‘Totally satisfied’. They were also given the opportunity to leave any open comments on the course.

## 5. Results

We first ruled out baseline differences between the groups regarding age, gender, and course year using the chi-square and Mann-Whitney tests for dichotomous and continuous variables, respectively (all  $p$ s >.1). We next evaluated the distribution of each level of each variable by using the Shapiro-Wilk test, and in the case of a positive result, we further inspected the skewness and kurtosis to confirm deviations from normality. All variables except the satisfaction rate showed normality within the acceptable range ( $p$ -values for Shapiro-Wilk tests >.05 and/or kurtosis and skewness within the range of

**Table 1.** Mean scores and standard deviation (SD, in parenthesis) for each group at pre- and post-time points.

	GROUP	CRAFT		MBSR		
		TIME	Pre	Post	Pre	Post
FFMQ	<b>Observe</b>		27.08 (4.55)	32.54 (4.61)	26.67 (4.24)	30.72 (4.08)
	<b>Describe</b>		23.25 (7.88)	27.42 (5.96)	21.89 (7.18)	24.44 (6.57)
	<b>Aware</b>		18.96 (5.96)	20.33 (6.42)	16.50 (5.24)	18.39 (5.59)
	<b>Nonjudge</b>		15.46 (6.77)	17.54 (9.07)	16.06 (6.80)	20.11 (6.69)
	<b>Nonreact</b>		23.00 (4.06)	25.25 (4.49)	22.72 (4.64)	24.28 (4.71)
	<b>Total</b>		107.75 (21.37)	123.08 (22.75)	103.83 (12.30)	117.94 (22.48)
CREA			13.87 (4.01)	16.30 (6.83)	12.67 (4.80)	13.17 (5.26)
ERQ	<b>Cognitive Reappraisal</b>		30.00 (6.11)	34.35 (5.53)	29.17 (6.76)	30.33 (6.12)
	<b>Expressive Suppression</b>		14.83 (6.09)	12.83 (5.76)	15.06 (5.18)	13.44 (5.38)
DASS-21	<b>Anxiety</b>		6.75 (5.86)	5.46 (5.50)	4.83 (2.83)	4.11 (3.61)
	<b>Stress</b>		10.88 (5.04)	4.00 (5.71)	8.78 (3.67)	7.44 (4.10)
	<b>Depression</b>		6.58 (6.83)	13.00 (6.73)	7.28 (5.50)	4.50 (4.71)
TEIQUE (SF)			142.21 (29.14)	147.83 (30.59)	137.83 (17.19)	150.06 (18.86)
CQS	<b>Metacognitive</b>		23.54 (4.35)	24.88 (2.74)	24.11 (2.68)	25.44 (2.33)
	<b>Cognitive</b>		23.46 (5.65)	27.58 (5.93)	24.78 (3.67)	27.72 (5.92)
	<b>Motivational</b>		29.79 (4.99)	31.46 (4.94)	28.33 (3.88)	30.17 (4.38)
	<b>Behavioural</b>		29.42 (11.79)	30.54 (13.08)	28.67 (4.10)	29.72 (4.11)
	<b>Total</b>		106.21 (14.67)	114.46 (11.63)	105.89 (8.61)	113.06 (12.11)
MW	<b>Deliberate</b>		19.25 (5.95)	17.96 (5.37)	19.44 (5.25)	17.94 (4.73)
	<b>Spontaneous</b>		17.54 (5.82)	16.46 (5.90)	18.89 (4.66)	16.50 (2.79)

[-3, +3] and [-2, +2], respectively). Consequently, parametric tests were used to analyse most datasets. Particularly, we used mixed ANOVAs with Group (CRAFT vs. MBSR) as the between-participants factor and Time (Pre- vs. Post-intervention) as within-participant factor. Unfortunately, the MSLQ could not be included in the analyses due to a human error in the process of typesetting the items into the LimeSurvey platform (i.e., the technician in charge of the task erroneously coded the items from a different test).

Independent analyses were run on the results of the global measures of these tests: FFMQ, TEIQUE, CQS and CREA. In addition, for a subset of tests, additional analyses were run on their subcomponents.

The means and SDs for each of the measures used at both pre- and post-intervention time points can be found in Table 1. As can be seen in both groups, there is a general improvement in positive competences and a reduction of negative ones in most of the measures. However, means and SDs only convey raw numerical data and are uninformative until processed by ANOVAs or other statistical analyses.

Table 2 shows the results from the ANOVAs pertaining to Time and Group differences. As can be seen, we found a similar pattern of results for most measures included in the analyses, with main effects of the variable Time, but no effect of Group, nor any significant interaction between Time and Group. Regarding the effect of Time, a significant improvement was obtained in both groups from pre- to post-intervention in the following tests: (i) Five Facets Mindfulness Questionnaire (FMQ), for the global scale and for each of the subscales; (ii) Cognitive Reappraisal (CR) score from the Emotion Regulation Questionnaire (ERQ); (iii) Trait Emotional Intelligence Questionnaire Short form (TEIQUE-SF); (iv) the global and each subscale of the Cultural Intelligence Scale (CQS). At the same time, the stress component of the Depression, Anxiety, Stress Scale (DASS21),

**Table 2.** *F*-values (Degrees of Freedom), *p*-values, and Partial Eta Squared Effect Sizes of Main Effects (Time, Group) and Interaction (Time x Group) for each Outcome Measure.

	Time			Group			Time x Group		
	$F_{(1, 40)}$	<i>p</i>	$\eta_p^2$	$F_{(1, 40)}$	<i>p</i>	$\eta_p^2$	$F_{(1, 40)}$	<i>p</i>	$\eta_p^2$
FFMQ–Ob	<b>32.19</b>	<b>&lt;.001</b>	<b>0.446</b>	1.06	.311	0.026	0.70	.408	0.017
FFMQ–De	<b>15.19</b>	<b>&lt;.001</b>	<b>0.275</b>	1.19	.281	0.029	0.87	.356	0.021
FFMQ–Ac	<b>5.03</b>	<b>.031</b>	<b>0.112</b>	1.71	.198	0.041	0.12	.726	0.003
FFMQ–Nj	<b>6.43</b>	<b>.015</b>	<b>0.139</b>	0.63	.433	0.015	0.66	.420	0.016
FFMQ–Nr	<b>10.74</b>	<b>.002</b>	<b>0.212</b>	0.25	.623	0.006	0.36	.553	0.009
FFMQ–Tot	<b>25.86</b>	<b>&lt;.001</b>	<b>0.393</b>	0.63	.431	0.016	0.04	.834	0.001
ERQ–CR	<b>6.47</b>	<b>.015</b>	<b>0.139</b>	2.75	.105	0.064	1.95	.171	0.046
ERQ–ES	<b>6.77</b>	<b>.013</b>	<b>0.145</b>	0.07	.799	0.002	0.08	.781	0.002
DASS21–S	<b>10.50</b>	<b>.002</b>	<b>0.208</b>	0.63	.432	0.015	2.06	.159	0.049
DASS21–D	2.80	.102	0.065	0.08	.775	0.002	1.44	.238	0.035
DASS21–A	2.61	.114	0.061	1.44	.237	0.035	0.22	.650	0.005
TEIQue–SF	<b>10.75</b>	<b>.002</b>	<b>0.212</b>	0.02	.886	0.000	1.47	.233	0.035
CQS–Tot	<b>23.05</b>	<b>&lt;.001</b>	<b>0.366</b>	0.06	.803	0.002	0.11	.738	0.003
CQS–Me	<b>4.72</b>	<b>.036</b>	<b>0.106</b>	0.52	.475	0.013	0.00	.999	0.000
CQS–Co	<b>15.61</b>	<b>&lt;.001</b>	<b>0.280</b>	0.26	.616	0.006	0.44	.513	0.011
CQS–Mo	<b>9.66</b>	<b>.003</b>	<b>0.194</b>	1.70	.307	0.026	0.02	.833	0.001
CQS–Be	3.20	.081	0.074	0.37	.548	0.009	0.01	.955	0.000
MWD	2.68	.110	0.063	0.01	.951	0.000	0.02	.903	0.000
MWS	<b>5.43</b>	<b>.025</b>	<b>0.119</b>	0.24	.624	0.006	0.77	.386	0.019
CREA <sup>a</sup>	2.74	.106	0.066	2.29s	.139	0.055	1.19	.282	0.030

Note. FFMQ = Five Facets Mindfulness Questionnaire; Ob = Observing; De = Describing; Ac = Acting with Awareness; Nj = Non-judging; Nr = Non-reactivity; Tot = Total Score; EQR = Emotional Regulation Questionnaire; CR = Cognitive Reappraisal; ES = Expressive Suppression; DASS21 = Depression Anxiety and Stress Scale; S = Stress; D = Depression; A = Anxiety; TEIQue–SF = Trait Emotional Intelligence Questionnaire Short Form; CQS = Cultural Intelligence Scale; Me = Metacognitive; Co = Cognitive; Mo = Motivational; Be = Behavioural; MWD = Mind-Wandering: Deliberate; MWS = Mind Wandering: Spontaneous; CREA = Creative Thinking Test.

Statistically significant comparisons ( $p < .05$ ) are boldfaced.

<sup>a</sup>Degrees of freedom for CREA statistical comparisons are (1, 39)

the Expressive Suppression (ES) score from the Emotion Regulation Questionnaire (ERQ), and the spontaneous score from the Mind Wandering (MW) test decreased significantly from pre- to post-intervention in both groups.

These results indicate a salutary pre- to post-intervention change in the previously mentioned variables, which occurred equally in both intervention groups. In contrast, scores from the CREA Test, the Anxiety and Depression components from the DASS21, and the deliberate component of the MW test were not significantly affected by any of the interventions.

Finally, 23 participants in the CRAFT group and 18 participants in the MBSR group responded to the satisfaction questionnaire. A Mann-Whitney test indicated that the satisfaction rates did not significantly differ between the CRAFT (Mdn = 7) and the MBSR (Mdn = 7) groups ( $U = 197$ ,  $z = -.3$ ,  $p = .764$ ). This suggested that both groups were equally highly satisfied.

## 6. Discussion

This work echoes recent trends that assume that transversal competences can be increased through intentional training and call for empirically supported psycho-educational interventions in the context of TS (Hubscher-Davidson and Lehr 2021,

36). The results of this study provide preliminary evidence that indicates that T&I students, who take a mindfulness-based course, can improve in a host of transversal competences (i.e., dispositional mindfulness, adaptive emotional regulation, emotional intelligence and cultural intelligence). In addition, we found that the programme led to a reduction of stress, maladaptive emotional regulation (i.e., expressive suppression) and (spontaneous) mind-wandering.

These findings are of potential interest, especially since the pre- and post-intervention measurements were taken before and during the COVID-19 pandemic, respectively. According to the literature, measures on difficulties in emotion regulation and stress were indeed expected to be higher than usual (Saladino, Algeri, and Auriemma 2020). As a result, the psychological benefits of following mindfulness training observed in our study extend previous findings in the general population (Ramasubramanian 2017) to a sample of T&I students.

Furthermore, on the basis of evidence that professional translators suffer from occupational stress (Courtney and Phelan 2019), these findings may shed some light on how to contribute to organisational and individual wellbeing in the workplace. Finally, the enhancement of cultural intelligence in the subjects who took the course is of special relevance since, to the best of our knowledge, this is the first study to test the effect of mindfulness-based training on this skill for translation and interpreting studies.

At odds with our expectations, however, anxiety and depression scores were not significantly reduced after intervention. Similarly, for creativity, we did not observe an improvement following mindfulness training, nor any interaction between Time and Group. This did not confirm our hypotheses, since we expected the change in time for the CRAFT programme to be significantly larger as compared to the MBSR (i.e., an interaction Time by Group favouring the CRAFT programme).

The fact that we did not find any significant Group by Time interaction for any of the measures analysed seems to suggest that both mindfulness interventions led to similar effects. However, we cannot completely rule out the possibility of such interactions, or between-group differences, since they might have been so subtle that our statistical power was insufficient to reliably detect them.

## **7. Problems encountered and limitations of the study**

Although most of the intervention effects described above were statistically significant and consistent across measures, they can only be regarded as preliminary. The reasons for this are related to the design and the unforeseeable challenges encountered during the study. The first problem we faced was the COVID-19 pandemic and the resulting lockdown. This resulted in a number of changes including shifting from face-to-face to online teaching, which in turn meant adapting programme materials and the design of the study, which changed from crossover to parallel design.

Second, the small sample of subjects that participated in the study and completed the two testing phases was also a handicap, which was further aggravated by the COVID-19 pandemic. This circumstance limited our statistical power and also prevented us from including a control group in the study. In addition, the fact that most of our measures were subjective in nature (i.e., self-reported questionnaires, except for the CREA), together with the impossibility to blind participants to the fact that they were receiving

a mindfulness-based intervention, might have led to placebo effects affecting our results. In sum, while the results of the present study are certainly encouraging, more research is needed to fully test the potential of these two mindfulness-based interventions to improve relevant transversal competences in T&I students.

## 8. Conclusion

Though this study may be regarded as relatively underpowered, the fact that its preliminary results suggest an improvement in competences such as cultural intelligence, adaptive emotional regulation, and stress resilience in the context of the COVID-19 pandemic, has encouraged us to move forward and scale up a similar methodology with a view to testing larger samples in other degrees at the University of Granada.

This proposal goes beyond a single psycho-educational intervention that aims at individual self-improvement and covers the whole process from learning needs detection, through methodology design and implementation, transversal competence certification and validation, to curriculum design and policy development. The aim is to turn research into tools and bring about a paradigm shift that equips students and the system with all that is necessary to thrive and contribute to society. To our knowledge, this is the first study to implement, measure, and compare the impact of two mindfulness-based psycho-educational interventions in TS. It is also the first to register its methodology at the USA Government clinical trials database, and fully integrate the course in the Translation and Interpreting Bachelor's Degree via the provision of 4 ECTS credits.

Interdisciplinary and methodologically sound studies are needed where these competences can be defined and measured with a view to translating data into meaningful insights, and to turning research into tools in a medium-long term. According to Burning Glass, the leading labour market analytics firm, communication, creativity, interpersonal skills, and collaboration will be critical to unlocking millions of jobs, even in the current economy (Burning Glass Technologies 2019). Historically, moments of crisis have served as a powerful force for innovation, and this time should be no different. Higher education and TS now have a compass to chart what's next to prepare students for life after university (Selingo and Sigelman 2021; Hubscher-Davidson and Lehr 2021), and transversal competences are reference points on the map.

## Note

1. While initially we also aimed to assess the impact of this intervention on the academic performance of the students, the evaluation process had to be extensively remodelled because of the pandemic. As a result, this secondary objective could not be achieved.

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Conceptualization: MGQ; Software: LC; Methodology; Investigation, Data curation and formal analysis: LC, MF, MO, MGQ; Writing – original draft: MGQ; Writing – review and editing: LC, MF, MO, MGQ; Supervision: MF; Project administration and funding acquisition: MGQ. LC and MF contributed equally to this work.

## Data availability statement

Due to privacy and ethical restrictions, the data that support the findings of this study will be made available upon reasonable request.

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