"EVALUATION OF BRIDGE THE SKILLS GAP" REPORT (IO6)

Level UP

Setting the ground for a multi-level approach on developing soft skills in Higher Education

D I S C L A I M E R

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Contents

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Summary

Background

Demand for highly skilled, efficient, healthy and socially engaged citizens and employees is increasing. Skills mismatches pose a massive economic and societal burden in EU, and compromise the employability, wellbeing and quality of life of millions of Europeans.

Higher Education (HE) Institutions as drivers for wider socio-economic change and innovation, host a significant proportion of the future workforce. Despite the satisfactory acquisition of theoretical knowledge and occupation-specific skills, graduates still lack of key competencies, such as transversal skills.

To deal with this challenge, different types of skill training interventions/ competence-based education within HE, have been created to help students develop transversal/soft skills.

The Level UP intervention was designed to develop a framework that lies in a multi- level support system that follows a linear, progressive fashion, starting from the broader application to the narrower one.

Objectives

a.   Develop and adapt the content of level 1 and level 2 training programs.

b.   Test the acceptability of implementing level 1 and level 2 as a standalone training within four EU universities.

c.   Test the preliminary effectiveness of level 1 (using a Randomized Controlled Trial)

d.   Test the overall feasibility of implementing a multi-level framework.

Method

We used a mixed-method post design with a multi-case study approach to evaluate the acceptability of the psycho-educational intervention in four university settings.

Results

Overall, the majority of participants found soft skills training acceptable and usable. The key domains affecting trainings' implementation in practice were the university context and its resources (to offer a unified framework) and participants' prior knowledge and experience related to the trainings' topics.

Conclusions

The quantitative and qualitative findings provide some preliminary support for students' acceptability for soft skills training within tertiary education. Important findings were also gathered that may enhance the integration of soft skills trainings under "real world" settings. Future full trials would provide greater confidence in modelling the effectiveness and cost-effectiveness of the proposed framework.

Funding

Περίληψη

Θεωρητικό υπόβαθρο

Η ζήτηση για πολίτες και εργαζόμενους που χαρακτηρίζονται από υψηλή εξειδίκευση, αποδοτικότητα, υγεία και κοινωνική συμμετοχή ολοένα και αυξάνεται. Οι ελλείψεις σε επίπεδο δεξιοτήτων δημιουργούν τεράστιο οικονομικό και κοινωνικό βάρος στην ΕΕ και θέτουν σε κίνδυνο την απασχολησιμότητα, την ευημερία και την ποιότητα ζωής εκατομμυρίων Ευρωπαίων.

Τα Ιδρύματα Ανώτατης Εκπαίδευσης (ΑΕΙ), ως μοχλοί ευρύτερων κοινωνικοοικονομικών αλλαγών και πηγή καινοτομίας, συγκεντρώνουν σημαντικό ποσοστό του μελλοντικού εργατικού δυναμικού. Παρά την ικανοποιητική απόκτηση θεωρητικών γνώσεων και δεξιοτήτων που αφορούν συγκεκριμένα επαγγέλματα, οι απόφοιτοι εξακολουθούν να στερούνται βασικών ικανοτήτων, όπως οι ήπιες δεξιότητες.

Για την αντιμετώπιση αυτής της πρόκλησης, έχουν σχεδιαστεί διάφοροι τύποι παρεμβάσεων κατάρτισης δεξιοτήτων/εκπαίδευσης βασισμένης σε ικανότητες στο

πλαίσιο των ΑΕΙ, προκειμένου να βοηθήσουν τους φοιτητές να αναπτύξουν ήπιες δεξιότητες.

Το παρεμβατικό πρόγραμμα Level UP δημιουργήθηκε προκειμένου να διαμορφώσει ένα πλαίσιο που έγκειται σε ένα πολυεπίπεδο σύστημα υποστήριξης, το οποίο ακολουθεί ένα γραμμικό, βαθμιαίο σχεδιασμό, ξεκινώντας από την ευρύτερη εφαρμογή του προγράμματος προς πιο εξειδικευμένα ζητήματα.

Στόχοι του προγράμματος

α.   Η ανάπτυξη και προσαρμογή του περιεχομένου των προγραμμάτων κατάρτισης επιπέδου 1 και 2.

β.   Η εξέταση της αποδοχής της εφαρμογής των επιπέδων 1 και 2 ως αυτόνομης κατάρτισης σε τέσσερα πανεπιστήμια της ΕΕ.

γ.   Η δοκιμή της προκαταρκτικής αποτελεσματικότητας του επιπέδου 1 (με τη χρήση τυχαιοποιημένης ελεγχόμενης δοκιμής).

δ.   Η διερεύνηση της συνολικής σκοπιμότητας της εφαρμογής ενός πολυεπίπεδου προγράμματος.

Μέθοδος

Χρησιμοποιήσαμε ένα σχεδιασμό μεικτής μεθόδου εκ των υστέρων σε συνδυασμό με την προσέγγιση της μελέτης πολλαπλών περιπτώσεων προκειμένου να αξιολογήσουμε την αποδοχή της ψυχοεκπαιδευτικής παρέμβασης σε τέσσερα πανεπιστημιακά ιδρύματα.

Αποτελέσματα

Συνολικά, η πλειονότητα των συμμετεχόντων θεώρησε την εκπαίδευση στις ήπιες δεξιότητες ως ικανοποιητική και χρήσιμη. Οι βασικοί τομείς που επηρέασαν την εφαρμογή των εκπαιδεύσεων στην πράξη ήταν το πανεπιστημιακό περιβάλλον και οι πόροι του (για την προσφορά ενός ενιαίου πλαισίου εφαρμογής των ήπιων δεξιοτήτων) καθώς και οι προηγούμενες γνώσεις και εμπειρίες των συμμετεχόντων στα συγκεκριμένα θέματα εκπαίδευσης.

Συμπεράσματα

Τα ποσοτικά και ποιοτικά ευρήματα παρέχουν μια προκαταρκτική υποστήριξη για την αποδοχή από τους φοιτητές της κατάρτισης σε ήπιες δεξιότητες στο πλαίσιο της τριτοβάθμιας εκπαίδευσης. Συγκεντρώθηκαν, επίσης, σημαντικά ευρήματα που μπορούν να προάγουν την

ενσωμάτωση των εκπαιδεύσεων σε ήπιες δεξιότητες στο πλαίσιο του "πραγματικού κόσμου". Πληρέστερες μελλοντικές δοκιμές θα παρέχουν μεγαλύτερη αξιοπιστία στη μοντελοποίηση της αποτελεσματικότητας και της σχέσης κόστους-οφέλους του προτεινόμενου προγράμματος.

Χρηματοδότηση

Samenvatting

Achtergrond

De vraag naar hoogopgeleide, efficiënte, gezonde en sociaal betrokken burgers en werknemers neemt toe. De discrepantie tussen de vraag naar en het aanbod van vaardigheden vormt een enorme economische en maatschappelijke last in de EU en brengt de inzetbaarheid, het welzijn en de levenskwaliteit van miljoenen Europeanen in gevaar.

Instellingen voor hoger onderwijs zijn een drijvende kracht voor bredere sociaal-economische verandering en innovatie, en leiden een aanzienlijk deel van de toekomstige beroepsbevolking op. Ondanks voldoende theoretische kennis en beroepsspecifieke vaardigheden, ontbreekt het afgestudeerden nog steeds aan essentiële competenties, zoals transversale vaardigheden.

Om deze uitdaging aan te gaan, zijn er binnen het hoger onderwijs verschillende soorten vaardigheidstrainingen of competentiegericht onderwijs ontwikkeld om studenten te helpen transversale vaardigheden/soft skills te ontwikkelen.

De Level UP interventie is ontworpen in het kader van een raamwerk van een multi-level ondersteuningssysteem op meerdere niveaus, dat lineair en progressief verloopt, beginnend bij de bredere toepassing naar de smallere toepassing.

Doelstellingen

a.   Het ontwikkelen en aanpassen van de inhoud van niveau 1 en niveau 2 trainingsprogramma's.

b.   De aanvaardbaarheid testen van de implementatie van niveau 1 en niveau 2 als een op zichzelf staande training binnen vier universiteiten in de EU.

c.   De voorlopige effectiviteit van niveau 1 testen (met behulp van een gerandomiseerde gecontroleerde trial).

d.   De algemene haalbaarheid van de implementatie van een raamwerk met meerdere niveaus testen.

Methode

We gebruikten een mixed-method post design met een multi-case onderzoeksaanpak om de aanvaardbaarheid van de psycho-educatieve interventie in vier universitaire instellingen te evalueren.

Resultaten

Over het algemeen vond de meerderheid van de deelnemers de training in soft skills aanvaardbaar en bruikbaar. De belangrijkste domeinen die van invloed waren op de implementatie van de training in de praktijk waren de universitaire context, de middelen (om een eenduidig kader te bieden), de voorkennis en ervaring van de deelnemers met betrekking tot de onderwerpen van de training.

Conclusies

De kwantitatieve en kwalitatieve bevindingen bieden enige voorlopige steun voor de aanvaardbaarheid van trainingen in soft skills binnen het hoger onderwijs zoals ervaren door studenten. Er werden ook belangrijke bevindingen verzameld die de integratie van soft skills trainingen in de "echte wereld" kunnen verbeteren. Toekomstig onderzoek zou meer vertrouwen geven bij het modelleren van de effectiviteit en kosteneffectiviteit van het voorgestelde raamwerk.

Financiering

Dit project werd gefinancierd door het Erasmus+ KA2 programma van de Europese Unie (E+KA2/2020-2023)

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Resumen

Contexto

La demanda de ciudadanos y empleados altamente cualificados, eficientes, sanos y socialmente comprometidos va en aumento. La falta de habilidades y competencias supone una enorme carga económica y social en la UE y compromete la empleabilidad, el bienestar y la calidad de vida de millones de europeos. Las instituciones de Educación Superior, como motores de cambios socioeconómicos más amplios e innovadores, acogen a una proporción significativa de la futura mano de obra. A pesar de la adquisición satisfactoria de conocimientos teóricos y habilidades específicas para cada profesión, los titulados siguen careciendo de habilidades clave, como las transversales.

Para hacer frente a este reto, se han creado diferentes tipos de entrenamientos en habilidades/formaciones basadas en competencias dentro de la Educación Superior, para ayudar a los estudiantes a desarrollar habilidades transversales o blandas.

La intervención Level UP se diseñó para desarrollar un marco centrado en un sistema de enseñanza de varios

niveles que sigue una forma lineal y progresiva, partiendo de la aplicación más amplia a la más restringida.

Objetivos

a. Desarrollar y adaptar el contenido de los programas de formación de nivel 1 y 2.

b. Probar la aceptabilidad de la aplicación de los niveles 1 y 2 como formación independiente en cuatro universidades de la UE.

c. Comprobar la eficacia preliminar del nivel 1 (mediante un ensayo controlado aleatorio).

d. Comprobar la viabilidad general de la implantación de un marco multinivel.

Método

Se utilizó un diseño de metodología mixta a posteriori con un enfoque de estudio de casos múltiples para evaluar la aceptabilidad de la intervención psicoeducativa en cuatro entornos universitarios.

Resultados

En general, la mayoría de los participantes consideraron que la formación en competencias blandas fue aceptable y

utilizable. Los factores clave que influyeron en la puesta en práctica de la formación fueron el contexto universitario y sus recursos (para ofrecer un marco unificado) y los conocimientos previos y la experiencia de los participantes en relación con los temas de la formación.

Conclusiones

Los resultados cuantitativos y cualitativos proporcionan un respaldo preliminar de la aceptación por parte de los estudiantes de la formación en habilidades blandas dentro de la educación terciaria. También se obtuvieron conclusiones importantes que pueden mejorar la integración de la formación en competencias blandas en entornos del "mundo real". Futuros ensayos completos proporcionarían una mayor confianza en la elaboración de modelos eficaces y rentables del marco propuesto.

Financiación

Introduction

The role of Higher Education in sustained economic growth, and social progress is critical. HE institutions (HEIs) as key 'future shaper' settings, host a significant proportion of talented youth, future workforce, and leader (Cawood, Dooris, & Powell, 2010; Suárez-Reyes, Muñoz Serrano, & Van den Broucke, 2019). Entering university marks a turning point for youth, since HEIs can empower young people to transform and expand skills to manage complex and global environmental and societal challenges.

Soft skills, such as the ability to set goals and achieve them, to regulate emotions, to demonstrate agility and adaptability, and manage interpersonal relationships, are now an emerging trend for tackling global economic and societal challenges (World Economic Forum, 2016; Organisation for Economic Co-operation and Development, 2019). In addition, soft skills related to mental and physical health, wellbeing and adjustment, have received growing interest over recent years, and have become even more critical in the context of emerging needs to build resilience in the face of the Covid-19 pandemic and in preparation for future crises (Bauer, et al.

2021; Liang, et al. 2020; Nearchou, et al. 2020; Rousseau, & Miconi, 2020).

Despite soft skills importance, evidence confirm a "skills gap", meaning that youth lack soft skills that are highly important in the workplace (Noah, & Aziz, 2020). Although students in HE commonly graduate with excellent technical academic skills to do well in their future profession, it is highly debated whether higher education graduates also have developed sufficient soft skills essential to do well at the workplace (Noah, & Aziz, 2020).

Given these challenges to individuals' academic performance, work achievement, mental health, it would be advisable to equip students with the resources required for life success. As these skills become increasingly of central interest to communities, it becomes a pertinent question on how to expand them within the academic context by learning relevant information and practicing skills in a way that is responsive to the needs of the wider student community.

A key priority for HEIs is to promote a comprehensive approach to education, by putting students' transversal skills on an equal footing with profession-specific

knowledge and skills. One efficient way to address this, in a way that can reach as many interested students as possible, is through incorporating the necessary material in existing, popular and frequently offered elective or mandatory courses, in which training these skills is suitable.

To deal with these situations, different types of skill training interventions/ competence-based education within HE, have been created to help students develop skills for self- development (e.g. Rubens et al., 2018) and alleviation of mental health symptoms/mental health promotion (for metanalyses see Conley, Durlak, & Kirsch, 2015; Conley et al., 2017; Yusufov et al., 2019). Current findings suggest that a) incorporating specific components (such as coping skills training or Cognitive Behavioral/CBT and relaxation techniques for stress management, Yusufov et al., 2019) and b) specific training methodologies such as supervised skill training (Conley, Durlak, & Kirsch, 2015) or short-term/ brief trainings (Yusufov et al., 2019) may be beneficial for students and increase the feasibility of integrating these interventions in the HE context.

In addition to determining the active ingredients of interventions, defining pragmatic challenges, such as the best methodologies to coordinate and integrate such

interventions within the HE context are also of key importance (Conley et al., 2017). Continued research is needed to identify the specific systems and practices that will place students in an active role to define self-development goals and practice, in a systematic and guided form, some of these soft skills in real life settings.

During the last decades, increasing attention toward multitiered frameworks of interventions has emerged, as an approach that takes into account the role of the context and the level of provided support to facilitate the personal competencies of all students (Jimerson, Burns, & VanDerHeyden, 2015; Arora et al. 2019). The EU funded project LEVEL-UP (Ref: 2020-1-CY01-KA203-065985) is based on this kind of logic and aims to develop an innovative framework that lies in a multi- level support system that follows a linear, progressive fashion, starting from the broader application to the narrower one. According to the conceptualization of the project, in level 1, students will have the opportunity to gain up-to-date scientific knowledge on transversal skills through an introductory course. Through this course, students will be able to self-reflect on these skills and develop an Individual Skills Development Plan (ISDP). After completing the introductory course, each student will have

the opportunity to broaden as well as to deepen specific transversal skills (based on their ISDP), through stepwise, guided and multi-contextual practical training. Specifically, students will be able to enroll in skills development programs (group-based) offered by experts within the HEI (level 2), practice, apply and refine them through feedback. Finally, in level 3, participants of level 2, who are identified through self- and instructor evaluation as presenting significant challenges in specific skills domains, would be able to develop and consolidate these skills under a more intensive and individualized supportive program.

The present report aims to present the development, implementation, and evaluation phases for the two facets (level 1 and level 2) thus the overall feasibility of the proposed framework.

Objectives:

a. Develop and adapt the content of level 1 and level 2 training programs.
b. Test the acceptability of implementing level 1 and level 2 as a standalone training within four EU universities.

c. Test the overall feasibility of implementing a multi-level framework.

Phases of the research study

The intervention comprised four phases: development, pilot 1 and evaluation, adaptation, and pilot 2 and evaluation. Figure 1 illustrates a pathway diagram presenting the sequence of the above phases based on project's timeline.

PHASE	LEVEL 1	LEVEL 2
DEVELOPMENT	MARCH 2021-JUNE 2021	SEPTEMBER 2021-JANUARY 2022
PILOT 1	JUNE 2021-DECEMBER 2021	FEBRUARY 2022-MAY 2022
ADAPTATION	JANUARY 2022-JUNE 2022	JUNE 2022-SEPTEMBER 2022
PILOT 2	JUNE 2022-MAY 2023	OCTOBER 2022-MAY 2023

Figure 1

Phase 1: Development phase

The trainings' development focused on moving from the traditionally didactic, of theoretical content, course design into competence-oriented education in which learners acquire knowledge and skills that will translate in their daily life, and proceed to assess personal needs and development, in order to seek further learning, outside and beyond this course. The three main goals of the trainings were:

a. to embrace new research-informed knowledge and practices that arise from the interdisciplinary field of transversal skills development.

b. To recognize scientifically informed sources of knowledge and self-improvement and understand how behavioral sciences can advance human wellbeing and success.

c. to help learners define the meaning of success that is consistent with their personal goals and values, to realize their potential and mobilize them for self-development.

The training components were extracted from the results of IO1 (Evidence Synthesis). The next step was to develop version 1 of the guidebooks and manuals. The partners

reviewed various resources (research articles, chapters, training manuals, activities etc.) based on science-informed approaches and methodologies.

Phase 2: Pilot 1 and evaluation

The next step was to pilot the training material in each university. The man goal was to identify areas for amendments adaptations on the material and teaching methodologies used.

Variations of course delivery were applied in different settings, to help us gather information about the optimal methodology of delivery.

Phase 3: Adaptation phase

Results from pilot 1 provided guidance on best practices, (e.g. group discussions, interactive activities, videos etc.), but also recommendations for improvements (e.g. suggestions for simplifying homework activities, shorten courses duration etc.).

Phase 4: Pilot 2 and evaluation phase

A final pilot phase was conducted to field test the adapted versions of training packages, and the modes and procedures of delivery.

Methods

Study design

We used a post design with a multi-case study approach to evaluate the acceptability of the psycho-educational intervention in four university settings. The case study approach was used to examine the acceptability of the intervention, by considering the influence of different features within each context (Goodrick, 2014). Different methodologies of delivery were used as part of the stage model for behavioral intervention development Rounsaville, Carroll, & Onken, (2001). Table 1 presents the method of delivery applied to each university for both phases 2 and 4. In specific, three universities (CY, GR, SP) ran a single-arm study, while the fourth university (NL) ran an RCT pilot study (see RCT pilot study methods for details).

The main outcomes included a) the acceptability of the course, and b) the usability of the course resources.

Setting

The study was conducted at four European Universities (University of Cyprus, Vrije Universiteit Amsterdam, Panepistimio Kritis and Universidad de Jaén).

Table 1

University[1]	Starting period	Ending period	Methodology			Number of sessions	Mode of delivery	Earn ECTS or Certificate of Attendance
			Single Arm (only Intervention Group)	Non-randomized trial	RCT			
UCY	June 2022	Aug-22	X			8 Lectures, 3 hours each, twice a week	Include course as a part of existing undergraduate elective course offered by Department of Psychology (Face to Face)	5 ECTS
VUA	Jan-22	Jun-22			X	7 lectures, 1.45 hours each, once a week	Include course as part of the mandatory Study & Career course in the second year BSc Health Sciences	0 ECTS
UOC	Feb-23	May-23	X			13 lectures, 3 hours each, once a week	Separate laboratory embedded in the undergraduate studies of the UoC	6 ECTS
UJA	Jan-23	Feb-23	X			8 lectures, 2 hours each. Once a week	Course included as an elective course/workshop for undergraduate students in psychology.	1.5 ECTS

Study population

The study recruited 262 participants in total (phase 2: 120 and phase 4: 142).

Eligibility criteria

Adult participants (male or female; aged ⩾ 18 years), who were enrolled as undergraduate students in one of the four universities, was eligible to participate in the study.

Recruitment

Recruitment strategies varied by location, depending on the structure of the curriculum and the nature of the course (i.e. required, elective, graded or not etc.). Examples of promotional activities included the development of promotion material (e.g. flyers, promo videos) and their distribution through the universities' webpage, social media and electronic newsletter.

Life skills 101 Course (Intervention)

The course was designed to be taken by undergraduate students across all disciplines with no pre-requisite

coursework. The course consisted of 7 sessions (1.5 hour per session) including an introductory and a closing part[2].

Course content

The course was designed by a team of academics having several years of experience in clinical psychology, educational psychology, research methods, training, and instructional design. The focus of the course is to teach students the fundamental theories, and practices of soft skills, as well as providing cases and material that give students the opportunity to learn from real life experiences. Each session begins with a reflection of the previous and ends with a recap. Session 1 features Self-regulation as the foundation of soft skills. Session 2 focuses on human needs and values and how to set relevant goals. Session 3 includes such topics as cognition and biases. Session 4 is devoted to identifying and addressing emotion and emotion regulation. Session 5 sheds light on communication and interpersonal skills. Session 6 focuses on analytical skills, critical thinking, problem solving and decision making. The final session

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[2] The final version of the course's manual and workbook is freely available in the project's website.

comprises topics relevant to organizational skills and leadership.

Course teaching methodology

The course was conducted in each country's native language or English (all students will exhibit an adequate level of reading and writing fluency). The basic format of each session involved presenting research-derived information about each topic, deducted from group discussion at various predetermined points. Teaching material (e.g. lecture presentations, video material, article reading etc.) was available to support and include information relevant to the session learning objectives. The instructor used several active learning methodologies (e.g., self-assessment, questionnaire/worksheet completion, reflective writing, role-play, quizzes, video feedback, Case-based vignettes and homework assignments) to impart the content. During the course, students were instructed to systematically examine their own skills in different domains by completing a series of self-assessments and practice homework and apply skills between the two sessions (e.g. journal writing exercises) as a means to foster self-reflection. Although the course is composed of several self-reflection assignments, the

primary assignment was the preparation of a final 'Individual Self Development Plan'. Finally, as an additional teaching modality, students were able to join a virtual class by downloading an app (specifically designed for this course) through which they were invited to answer single- item self-assessment questions, keep a graphical representation of their scores and receive reminders for homework assignments.

Instructors' training

The course was delivered by members of the academic staff (in each university) with relevant experience in teaching psychology courses, as well as in conducting experiential learning activities. All instructors received training in the "Life skills 101" course. To ensure consistency in intervention delivery, the instructors were offered:

a)   A transnational, 3-days virtual training (C1: "Train The Trainer") between 29th- 31st of August 2022. The training outlined the content, the best teaching practices, and specific methods of conducting the psychoeducational intervention. This training was conducted by a team of consortium members, who are tenured/tenure track faculty members and experts in areas such as Clinical Psychology,

Educational Psychology, Business Administration and Research Methodology.

b)　　An instructor's guidebook to provide them with step-by-step instructions in teaching each topic.

c)　　Local group supervisions for mutual exchange of knowledge, problem solving and decision making.

Measures

Acceptability

At post-intervention, all participants completed a course satisfaction/acceptability questionnaire (phase 2: adaptation of Hallis, et al. 2017, and phase 4: adaptation of Al-Fraihat et al. 2020, Bruijns et al. 2022, Tucker et al., 2022, and Hallis, et al. 2017). The questionnaires consisted of questions relating to their experience, satisfaction, and the challenges/enablers associated with design and implementation of the course. In addition to the questionnaire, qualitative feedback from the students and instructors was collected related to their experience, satisfaction, and the challenges/enablers associated with design and implementation of the course.

Gender identity, age, disability status, academic field, and year.

Procedure

Life-Skills 101 was delivered over 7 1.5h weekly sessions. During the first meeting, the instructor informed the class that one of the course purposes is to pilot a new content and asked for students' consent to participate in the research part towards its further development. In specific, students were asked if they were interested in participating in a study that involves completing questionnaires during the first and last weeks of the course. Upon conclusion of the course, students who voluntarily consented to participate in the research were asked to complete the acceptability questionnaire.

Data analysis

Acceptability was evaluated by calculating mean scores in Likert-scale questions. Qualitative feedback was organized and summarized based on predefined themes.

Methods (Phase 2: Randomised Controlled Trial/RCT pilot NL)

Setting

The psychoeducational course was part of the second-year mandatory course 'Study and career' of the Health Sciences Bachelor at the Vrije Universiteit Amsterdam. For facilitating the interaction between students and lecturers, two parallel groups were be created per each arm: two experimental groups and two waiting-list control (WLC) groups. The course sessions were taught at campus.

Study population

The sample for the current study was limited to second-year students of the health science bachelor at the Vrije Universiteit Amsterdam (VU). Moreover, participants needed to be enrolled in the "study and career" course. Through this course, students were approached to participate in the study, hereby purposive sampling was used. For students, the "study and career" course was mandatory while participation in the research was voluntary.

Randomisation

Randomization was done by an independent researcher who was not involved in the study procedures to ensure allocation concealment. Randomization was made with a

1:1 ratio via a web-based random number generator. After randomization, blinding of students, groups assignment and researchers is not possible due to the implementation of the course in real life settings.

Control

The WLC did not receive intervention after T0 and continued normal education. However, for ethical reasons, after the course's completion, the WLC still received intervention.

Results

Phase 2 (Pilot 1)

Participant responses from two universities (UCY and UJA) to the acceptability/usability questionnaire are reported in table 2. Overall, these results suggest that most participants found the Level 1 training acceptable and usable (Mean items score: > 5 out of 7-point likert scale). A minority of participants reported to find the Level 1 training to be confusing (<2.5 out of 7-point likert scale).

Qualitative data

In all universities, participants were asked, in an open-ended format, to report on the course components they enjoyed most and what content in the course they found least useful. Table 3 presents a summary of the main themes.

Table 2

	University of Cyprus		Universidad de Jaen	
	N=101		N=19	
Gender				
Woman (%)	72	(71.29)	16	(84.21)
Man (%)	29	(28.71)	3	(15.79)
Age				
Mean (SD)	21.03	(1.04)	21.58	(2.69)
Disability (%)				
No	88	(87.13)	17	(89.47)
Yes	5	(4.95)	1	(5.26)
Prefer not to disclose	5	(4.95)	1	(5.26)

		UCY N=101			UJA N=19	
Acceptability[3]	Mean	St.Dev.		Mean	St.Dev.	
The course met my needs overall.	5.50	1.44		6.68	1.38	
What was taught was relevant to me.	5.72	1.42		6.68	1.38	
Overall, I have been using what I have been taught in my every-day life.	5.40	1.44		6.42	1.43	
The course has helped me deal more effectively with daily issues.	5.37	1.65		6.42	1.39	
I found the sessions easy to follow.	5.78	1.40		6.68	1.38	
Overall, I understood the techniques and concepts that were taught.	5.99	1.14		6.68	1.38	
I am likely to continue to use the techniques learnt in the long term.	5.78	1.42		6.68	1.38	
Overall, I was able to do the homework assignments in between course sessions.	5.71	1.51		6.58	1.43	
I found the course confusing.	2.31	1.65		1	0	

[3] Likert scale: Disagree=1 2 3 4 5 6 Agree=7

Table 3

	UCY	VUA	UJA	UOC
Content's relevance	Topics were relevant to students' daily life.	Topics of the workshop were interesting and relevant for their struggles in daily life	Students reported how enriching the course was. Some of them were even encouraged to receive a more individualized support to continue strengthening their skills.	Students reported that "it was the most useful laboratory course throughout their studies at the Department".
Most helpful components	Stress management, Values and emotion regulation	Planning, emotions and self-regulation were the most useful topics.	The values-focused session was especially empowering for them.	Stress management and emotional regulation.
Least helpful components	-	Values and goals, interpersonal skills and flexibility were the less helpful topics.	-	-
Adaptations for improvement	Use more explanatory videos and in-class group activities	Adapt the content and reduce the duration of the sessions. Improve the balance between theory and practice. Incorporate more	Reinforce the in-session practices, reducing or even eliminating homework.	The course should include more experiential exercises based on evidenced based interventions related to soft skills. The course should be

		practical activities and dedicate more time for discuss the outcome in small groups Reduce the information of the slides and make more interactive the sessions. Students suggested create two sessions: one theoretical and one practical. Include more videos explaining the theory. Discuss and incorporate in the sessions the homework assignments		delivered by staff experienced in the development of social emotional skills or soft skills.

VU qualitative results

The following themes summarize the acceptability of the soft skills workshop. Participants had a common learning goal, characterized by a collective desire for self-improvement. Moreover, individual learning outcomes were discussed. Additionally, participants emphasized the importance of feeling cohesive, connected and safe in the workshop and discussed the favourable and unfavourable practical aspects of the workshop. Lastly, the future continuation of soft skills development was discussed:

- **All driven by the wish to find a space to grow**
  - Participants were interested in self-development and liked the workshop goals
  - Participants were open to learn new things - Workshop was an opportunity to try something different

- **Experiencing the feeling of cohesion, connection and safety**
  - A space to connect with others (e.g. covid..)

- A safe space (contributes to learning)
    - Cohesiveness and connection create a feeling of safety
    - The teachers' attitude contributes to a sense of safety
- Learning from each other

- **Realizing their individual learning achievements**
    - Discovering individual soft skills interests
    - Building a self-image
        - Self-reflection confirms prior self-knowledge
        - Self-reflection enhances self-knowledge
        - Self-reflection enhances self-understanding
        - Self-reflection on career and life goals
    - Embracing self-compassion
    - Cultivating individual soft skills: Students achieve self-development through learning different skills strategies
    - Interconnecting soft skills

- **Balancing between individual preferences and the workshop format**
    - Fitting workshop schedule in personal life
        - Digital sessions
        - Evening sessions
    - Teachers' characteristics
    - A certificate as a motivational reward
    - Balancing between theory, reflection, practice and integration in daily life
        - Time to reflect
        - More consideration for diversity in background knowledge/ learning strategies
        - Differences in learning approaches (homework, knowledge clips…)
        - More learning by doing

- **Wish to implement soft skills development in the future**
    - Applying soft skill strategies in daily life
    - Intending to continue soft skills education
    - Embedding soft skills in HE: Increasing opportunities for soft skills development

Phase 4 (Pilot 2)

Regarding course's acceptability, participants reported from average (VUA) to high levels of satisfaction (UCY, UJA, UOC). Table 4 provides in detail the descriptives of acceptability data.

Table 4

	UCY N=50		UJA N=6		VUA N=68		UOC N=18	
Gender								
Man(%)	19	(38)	2	(33.33)	10	14.71	3	16.67
Woman (%)	29	(58)	4	(66.67)	58	85.29	15	83.33
Questioning	1	(2)						
Other	1	(2)						
Age								
Mean (StD)	21.62	(2.72)	25	(4.73)	20.37	2.66	24.39	6.53
Field of Study								
Humanities	9	(18)					1	5.56
Social and Behavioral Sciences	12	(24)	5	(83.33)	1	1.47	17	94.

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Natural and Applied Sciences	24	(48)	1	(16.67)	67	98.53		
Business	5	(10)						
Year of Study								
1st Year	0	(0)	/					
2nd Year	8	(16)	/		68	100		
3rd Year	18	(36)	/				5	27.78
4th Year	18	(36)	/				11	61.11
5th Year	6	(12)	/				2	11.11
6th Year	0	0	/					

Acceptability[4]	UCY N=50		UJA N=6		VUA N=68		UOC N=18	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
The course met my needs overall.	4.60	0.61	4.83	.41	2.53	1.00	4.78	0.43
Overall, I enjoyed the course.	4.80	0.41	5.00	0	2.82	1.12	4.94	0.24
Overall, I was satisfied with the course.	4.78	0.42	5.00	0	2.68	1.01	4.89	0.32
I had enough time to complete the course.	4.52	0.81	4.50	.55	4.21	0.91	4.89	0.32
The length of each session within the course was appropriate.	4.74	0.49	1.oo	0	3.07	1.15	4.72	0.57

[4] Likert scale: Disagree=1 2 3 4 Agree=5

I found the sessions easy to follow.	4.76	0.52	4.33	.52	3.10	1.01	4.78	0.43
Overall, I was able to do the homework assignments in between course sessions.	4.16	1.08	4.17	.98	4.18	0.73	4.94	0.24
I found the course confusing.	1.56	0.93	4.33	.82	1.96	1.06	1.39	0.61
The course used interesting and appropriate delivery methods (e.g., animation, video, audio, text, simulation, etc.)	4.80	0.45	4.67	.52	1.93	1.12	4.78	0.43
The course increased my knowledge about soft skills.	4.74	0.53	3.50	.84	3.56	1.12	4.94	0.24
The homework assignments helped	4.40	0.88	4.67	.52	3.09	1.05	4.72	0.46

facilitate my learning								
Overall, I understood the techniques and concepts that were taught.	4.62	0.53	3.83	.75	2.96	1.16	4.50	0.62
The course content was new to me.	4.00	1.01	4.83	.41	2.79	1.10	3.28	1.02
What was taught was relevant to me.	4.30	0.84	3.83	.75	2.13	1.11	4.61	0.70
The course has helped me deal more effectively with daily issues.	4.40	0.83	5.00	0	3.99	0.86	4.28	0.75
I am likely to continue to use the techniques learnt in the long term.	4.66	0.66	4.50	.54	2.60	1.22	4.39	0.70
Overall, I have been using what I have been taught in my every-day life.	4.26	0.85	4.17	.98	2.90	0.99	3.94	0.80
Future students	4.72	0.50	-	-	2.34	0.96	4.89	0.32

would benefit from this course being integrated into the curriculum								
I had a positive attitude toward having the course.	4.56	0.64	-	-	2.63	1.04	4.89	0.32
My interest in learning about soft skills increased as a result of the course	4.52	0.65	-	-	2.60	1.07	4.67	0.49

Level 2

Methods

Study design

We used a post design with a multi-case study approach to evaluate the acceptability of the skills training in four university settings. The main outcomes included the acceptability of the trainings, the usability of the trainings' resources and the overall feasibility of the two levels of interventions.

Setting

The study was conducted at four European Universities (University of Cyprus, Vrije Universiteit Amsterdam, Panepistimio Kritis and Universidad de Jaén) from October 2022 to June 2023.

Study population

The study recruited 209 participants.

Eligibility criteria

Eligibility criteria will be adult participants (male or female; aged ≥ 18 years), who were enrolled as undergraduate students in one of the four universities.

Recruitment

Recruitment strategies varied by location, depending on the structure and the processes of each university (i.e. required, elective, graded or not etc.). Methods of delivery per university are presented in table 5.

Table 5

University	Mode of delivery
University of Cyprus	Offered trainings as part of Centre for Teaching and Learning of the University of Cyprus short courses program (voluntary extracurricular activity).
University of Crete	The bootcamps was offered for the students of the School of Social Science of the University of Crete through the counselling center. Also, 18 students from level 1 attended 1 bootcamp training as part of their workload in the context of the Lab.
University of Jaén	It will be included as part of the program of workshops and courses of the university.
Vrije Universiteit Amsterdam	The soft skills intervention will be integrated into the existing course 'Study and Career' (Studie en Loopbaan) in the program of the second-year students of the Bachelor in Health Sciences.

Life Skills Boot Camp

The boot camp was designed to be taken by undergraduate students across all disciplines with no pre-requisite coursework and students who participated in the "Life skills 101" course (Level 1) and have selected to participate in a boot camp training as part of their Individual Self Development Plan. The boot camp consisted of 3 training programs with 4 sessions (1.5 hour per session) each, including an introductory and a closing part.

Course content

The boot camp was designed by a team of academics having several years of experience in clinical psychology, educational psychology, and health psychology. The focus of the bootcamp was to teach students practical skills in three different domains of soft skills: a) Interpersonal Skills, b) Resilience and Flexibility and c) Emotion Regulation.

Each bootcamp included selected training activities, from a compilation of foundational works on contemporary evidence-based approaches, (i.e. Cognitive Behavioral approach, Acceptance and Commitment approach, Dialectical Behavior approach and Positive psychology) and it was divided into sessions that describe distinctive components for each thematic area. Table 6 outlines the organization and flow of each boot camps training.

Table 6

Emotion Regulation	Interpersonal Skills	Resilience and Flexibility
Emotion awareness	Verbal and nonverbal communication	Values and Signature strengths
Relaxation	Assertiveness	Positive Emotions
Thinking Traps	Teamwork	Stress management
Opposite Behaviors	Negotiation	Self-compassion

Each session provided a) the session outline, b) review of previous session's homework, c) activities, and d) homework assignment [5].

Bootcamps training methodology

The course was conducted in each country's native language or English (all students will exhibit an adequate level of reading and writing fluency). The basic format of each session involved experiential activities (e.g. group activities, self-reflection, group discussion etc.). Teaching material (e.g. audio-visual material, etc.) was available to support and include information relevant to the session learning objectives. The instructors used several active learning methodologies (e.g., self-assessment, questionnaire/worksheet completion, reflective writing, role-play, quizzes, video feedback, case-based vignettes and homework assignments) to impart the content. During

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[5] A detailed description of the course content can be found in the bootcamp's manual and workbook, freely available in the project's website.

the training, students were instructed to systematically practice new learned skills in different life domains by completing a series of homework activities. Finally, as an additional teaching modality, students were able to join a virtual class by having access to an online app (specifically designed for this course) through which they were invited to answer single- item self-assessment questions, keep a graphical representation of their scores and receive reminders and prompts for homework assignments.

Instructors' training

The course was delivered by members of the academic or admin staff (in each university) with relevant experience in running experiential group training courses. All instructors had received training in the "Life Skills Boot Camp". To ensure consistency in intervention delivery, the instructors were offered:

a)   A transnational, 3-days virtual training ("Train The Trainer") between 29th- 31st of August 2022. The training

outlined the content, the best teaching practices, and specific methods of conducting the psychoeducational intervention. This training was conducted by a team of Principal Investigators, who are tenured/tenure track faculty members/ PhD students, and experts in areas such as Clinical Psychology, Health Psychology, Educational Psychology, and Business Administration.

b) An instructor's manual to provide them with step-by-step instructions in teaching each topic.

c) Local group supervisions for mutual exchange of knowledge, problem solving and decision making.

Measures

Acceptability

At post-intervention, all participants completed a course satisfaction/acceptability questionnaire (see level 1). The

questionnaire consisted of challenges/enablers associated with the design and implementation of the trainings.

Procedure

Each "Life-Skills boot camp" training was delivered over four 1.5h weekly sessions. During the first meeting, the instructor informed the group that one of the training purposes was to pilot new content and ask for students' consent to participate in the research part towards its further development. Students who voluntarily consented to participate in the research were asked to complete an acceptability questionnaire after the bootcamps.

Data analysis

Acceptability was evaluated by calculating mean scores in Likert-scale questions.

Results

Phase 2 (Pilot 1)

Mean overall acceptability for all the samples ranged

between adequate- to high: UCY (M=6.05, SD= 1.42), UJA

(M=6.37, SD= 1.25) and VUA (M=5.08, SD= 1.78).

Participant responses to each acceptability/usability item

are reported in table 7.

Phase 4 (Pilot 2)

Table 8 provides the mean ratings across dimensions of

acceptability (UoC). Participants' feedback was positive

overall. An average score of 4 or more obtained on

acceptability items, where a score of 5 corresponds to the

highest level of acceptability.

Table 7

	UCY		UJA		VUA	
	N=7		N=23		N=28	
Gender						
Man (%)	1	(14.29)	3	(13.04)	3	(10.71)
Woman (%)	6	(85.71)	19	(82.61)	25	(89.29)
No Answer			1	(4.35)		
Age						
Mean (SD)	21.14	(2.27)	22.70	(5.91)	20.86	(2.73)

	UCY				UJA				VUA			
	N=7				N=23				N=28			
Acceptability	$\bar{x}$	SD	Med	Mo	$\bar{x}$	SD	Med	Mo	$\bar{x}$	SD	Med	Mo
The course met my needs overall.	6.00	1.15	6	7	6.48	0.67	7	7	4.46	1.40	5	5
What was taught was relevant to me.	6.14	0.90	6	7	6.57	0.59	7	7	4.96	1.50	5	6
Overall, I have been using what I have been taught in my every-day life.	6.14	1.07	6	7	6.26	0.92	7	7	3.75	1.55	3.5	3
The course has helped me deal more effectively with daily issues.	6.14	1.21	7	7	6.22	1.00	7	7	3.82	1.52	3.5	3
I found the sessions easy to follow.	6.57	0.79	7	7	6.74	0.62	7	7	6.75	0.52	7	7
Overall, I understood the techniques and concepts that were taught.	6.71	0.49	7	7	6.74	0.45	7	7	6.71	0.53	7	7
I am likely to continue to use the techniques learnt in the long term.	6.29	1.11	7	7	6.65	0.49	7	7	4.39	1.55	4	4
I found the course confusing.	2.57	2.37	1	1	1.70	1.72	1	1	1.71	1.30	1	1

Table 8

	Panepistimio Kritis (UoC)	
	N=48	
Gender		
Man(%)	1	2.08
Woman (%)	46	95.83
Questioning (%)	1	2.08
Age		
Mean(StD)	21.34	4.26
Field of Study		
Humanities	2	4.17
Social and Behavioral Sciences	46	95.83
Natural and Applied Sciences		
Business		
Year of Study		
1st Year	15	31.25
2nd Year	5	10.42

3rd Year	7	14.58
4th Year	19	39.58
5th Year	1	2.08
6th Year	1	2.08
Acceptability	Mean	St.Dev.
The course met my needs overall.	3.94	0.81
Overall, I enjoyed the course.	4.25	0.81
Overall, I was satisfied with the course.	4.06	0.86
I had enough time to complete the course.	4.40	0.79
The length of each session within the course was appropriate.	3.92	1.03
I found the sessions easy to follow.	4.40	0.76
Overall, I was able to do the homework assignments in between course sessions.	4.02	1.12
I found the course confusing.	1.58	0.94
The course used interesting and appropriate delivery methods (e.g., animation, video, audio, text, simulation, etc.)	3.71	1.07
The course increased my knowledge about soft skills.	4.06	0.93
The homework assignments helped facilitate my learning	3.63	1.12
Overall, I understood the techniques and concepts that were taught.	4.75	0.53
The course content was new to me.	3.10	1.37
What was taught was relevant to me.	4.21	0.94
The course has helped me deal more effectively with daily issues.	4.21	0.82

I am likely to continue to use the techniques learnt in the long term.	4.46	0.65
Overall, I have been using what I have been taught in my every-day life.	3.92	0.87
Future students would benefit from this course being integrated into the curriculum	4.56	0.62
I had a positive attitude toward having the course.	4.69	0.47
My interest in learning about soft skills increased as a result of the course	4.29	0.77
My interest in self-development increased as a result of the course.	4.46	0.71

Overall Feasibility

A feasibility evaluation was used to test different methodologies of multilevel intervention considering diverse context-specific organizational constraints, governance issues and goals. The aim of the feasibility assessment was to offer guidance on evaluating the viability of the framework in each university and to inform the development of the implementation strategy and future large-scale implementation and effectiveness studies.

The feasibility evaluation consisted of two steps: a) Evaluations of different methodologies used (case study approach based on the findings and roadmap development-IO5), as part of the stage model for behavioral intervention development (table 9); and b) at post-intervention, principal researchers involved in the development and delivery of the intervention in each site, completed Structured Assessment of FEasibility (SAFE; Bird et al. 2014), a standardised measure of the feasibility of complex interventions (Bird et al. 2014).

Table 9

Organisation	Level 2: Optional or Mandatory	Description	Indicators/measures
UCY	Optional/extracurricular activity	Level 1 participants were informed about the opportunity to participate in bootcamps. Those who are interested in participating will fill an Expression of Interest Form providing their contact details. They were informed about the dates and times of Level 2 trainings as part of short courses program offered by Centre for Teaching and Learning of the University of Cyprus.	% of expression of interest % of Level 1 participants in Level 2
UJA		All students of the course will have the opportunity to choose one of the three bootcamps.	
VUA	Mandatory: Part of official curriculum	All students of the Study and Career course will have the opportunity to choose one of the three mandatory bootcamps.	
UOC		All students from the Lab will choose one of the three bootcamps, as mandatory. Their participation will be part of the Workload and the ECTS of the Lab.	Qualitative feedback on usefulness of level 2.

Results

Case 1- University of Cyprus

While 40% of level 1 participants expressed interest in participating in level 2, only 5% of them ultimately participated in the bootcamps.

The reduced participation did not only concern level 1 participants, since of the entire set of students who initially declared participation for the specific workshops, only 40% actually participated in the bootcamps.

Case 2- Panepistimio Kritis

Participants left comments on the additional contribution of level 2 compared to level 1.

An important number of participants noted that Level 2 used 'more experiential methodology' than level 1, something they really enjoyed. However, a significant number of participants (especially psychology students in senior year at the department of psychology), stated that there was an overlap in the content level 1 and level 2.

SAFE

Five principal researchers from all partners universities filled the SAFE questionnaire, providing feedback on intervention's feasibility. Table 10 shows in detail the answers of the responders per item question. The majority of responders reported some issues related to the complexity of the intervention, such as staff training, time concerns and some reversable adverse events.

Table 10

Question	Answer	Counts
Do staff require specific training to deliver the intervention?	Yes: The intervention requires four hours or more of training	5
Is the intervention complex?	Partial: The intervention contains two or three separate components	4
	Yes: The intervention is made up of more than three separate components	1
Is the intervention time consuming to provide?	Partial: The intervention requires half an hour or more but less than two hours of work per week (per group of participants)	3
	Yes: The intervention requires two hours or more per week of work (per group of participants)	2
Does the intervention include/require ongoing support and supervision?	No: The intervention does not require any additional support sessions or supervision	1
	Partial: The intervention requires an additional monthly supervision or support session	1
	Unable to rate: Not enough information provided to rate item	1
	Yes: The intervention requires an extra weekly supervision or support session	2

Question	Answer	Counts
Does the intervention require additional human resources?	No: The intervention can be provided by one member of staff	3
	Partial: More than one member of staff are involved in providing the intervention	1
	Yes: Either the whole team is required to provide the intervention or professionals not in the standard multidisciplinary team are needed.	1
Does the intervention require additional material resources?	No: The intervention does not require any additional resources that staff would not usually have access to	3
	Partial: The intervention requires additional but readily available resources e.g. computers, workbooks	2
Is the intervention costly?	No: The intervention cost is low	5
Are there known serious or adverse events associated with the intervention?	No: There are no known serious or adverse events associated with the intervention	2
	Partial: There are known adverse events associated with the intervention	2
	Unable to rate: Not enough information provided to rate item	1
Is the intervention applicable to the population of interest (e.g. adults using community mental health teams)	Partial: The intervention has been designed for a general mental health population or can be adapted to be applicable to the population of interest	2
	Yes: The intervention has been designed for the population of interest	3
Is the intervention manualized?	Partial: Some components of the intervention are manualised	1
	Yes: All components of the intervention are manualised	3
Is the intervention flexible (i.e. can it be tailored to the context and situation)?	Partial: Elements of the intervention can be tailored to the context and situation	1
	Yes: The intervention is flexible and can be tailored to the context and situation	4
Is the intervention likely to be effective (i.e. evidence based and expected to produce positive outcomes)?	Partial: There is some evidence for the effectiveness of the intervention (e.g. case studies but no clinical trials)	2
	Yes: There is an established evidence base regarding the effectiveness of the intervention (e.g. clinical trials)	3

Question	Answer	Counts
Is the intervention cost saving?	Unable to rate: Not enough information provided to rate item	3
	Yes: The intervention has been demonstrated to save costs	2
Do the intended goals of the intervention match the prioritised goals of the organization?	Partial: The secondary aims of the intervention match the current valued outcomes	1
	Yes: The primary aims of the intervention match valued organisation outcomes	4
Can the intervention be piloted?	Yes: The intervention can be piloted by a few members of staff AND with only a few service users	5
Is the intervention reversible?	Partial: It is possible to stop the intervention, but there are likely to be some harmful, or unwanted, effects	1
	Unable to rate: Not enough information provided to rate item	1
	Yes: It is possible to stop the intervention without harmful, or unwanted, effects	3

Conclusions and Recommendations

In general, all pilot phases showed a general students'
acceptance of the trainings around the cultivation of soft
skills. Nevertheless, although the broader topic was part of
the participants' interest, the content did not always match
the needs of the participants. In addition, several
challenges (such as time constraints, limited resources
etc.) may have an impact on intervention's feasibility.

Recommendations

Despite encouraging preliminary findings regarding the
uptake of the specific interventions, due to limitations in
terms of resources available at each university institution,
it was not possible to run the pilot studies in a way that
would collect data in a way that would allow subgroup
comparisons (e.g. field and year of study, people with
specific learning needs/difficulties, etc.). Also, another
important limitation concerned participants' gender

imbalance. Finally, although only VUA managed to run an RCT, it was not possible to compare the new interventions with existing ones.

Nevertheless, the above initial results can give us some guidelines for the development and implementation of a soft skills development framework within academic institutions of higher education:

1. Initially, it would be advisable that these interventions could be integrated into the framework of the official curriculum. Although the majority of students were quite positive about participating in such trainings, in the cases where one of the levels was offered as an extracurricular activity, the participation rate decreased dramatically, mainly due to lack of time from other academic obligations.

2. The integration of these trainings, needs to be done in a personalized way, for example to take into

account students' individual needs, level of study and academic field (prior knowledge).

a. Content needs to be clarified beyond the broad headings of each topic by analyzing specific target indicators so that participants can assess which learning experience/opportunity best suits their needs.

b. Analytical mapping is needed for what is already provided in the context of soft skills training through the existing courses, to avoid unnecessary overlaps of the same content, as well as to build a path of gradual development and deepening of skills (each teaching experience builds on previous knowledge).

c. The teaching staff needs to be properly trained and have sufficient knowledge in the content of the topic, as well as possessing personal soft skills (e.g. management of adverse events) as well as using modern teaching methodologies, (e.g. experiential methodologies). Finding ways to collaborate with

industry and the employment sector and engaging professionals who specialize in these skills to enrich existing content is a key factor of success.

All the above need to be adjusted based on the available resources and the strategic priorities of each institution.

Study Limitations

linked to students' increased growth mindset.

The present study offers encouraging prospects for enhancing soft skills of university students; however, it is important to acknowledge the following constraints and shortcomings. The current study lacked follow-up data, and it is necessary to determine the training effect's duration in the longer term. Finally, further investigation of trainings' effectiveness using a fully powered trial (e.g. full-size RCT) could enhance the validity of the conclusions.

Ethical Considerations

Local approval was obtained for each university:

• Cyprus- Cyprus National Bioethics Committee (ΕΕΒΚ ΕΠ 2021.01.151 and ΕΕΒΚ ΕΠ 2022.01.14).

• The Netherlands- Ethics Committee of the Faculty of Science of the Vrije Universiteit Amsterdam (BETHCIE)

• Greece- Research Ethics Committee, University of Crete

• Spain- University of Jaén

The studies have been registered on clinicaltrials.gov (Level 1: NCT05525897 and Level 2: NCT05713747).

All procedures performed in the study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards. All study participants were informed in

detail of the aims and objectives of the study. Participants were informed that they have the right to withdraw their membership in the study at any time. Written informed consent was obtained from all individual participants included in the study. The anonymized data will be available from the corresponding author, on reasonable request. The authors foresee to provide the dissemination of the study results through publication in international scientific journals.

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Competing interests

None declared.

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