

**‘MIND THE SKILLS GAP REVIEW’  
EVIDENCE SYNTHESIS REPORT  
(IO1)**

**Level UP**

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

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# EXECUTIVE SUMMARY

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Soft skills<sup>1</sup> are widely acknowledged as instrumental for thriving and flourishing in life. As such, the European Union have added soft skills as a priority to the skills agenda to improve employability, inclusivity and resilience (<https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>). Yet, the implementation of soft skills training in higher education (HE) remains under large scrutiny.

The goal of this report is to provide an evidence synthesis to better understand (1) how important soft skills are for graduates, (2) which soft skills are most essential, (3) whether and how these soft skills can and should be taught in HE. To this end, we have integrated findings of a systematic review, focus groups and a survey. The synthesized findings can be summarized in 5 take home messages.

1. Soft skills are considered essential for all aspects of employability, and to thrive in life in general, by students, HE professionals and other professionals. Despite the importance of soft skills, few soft skills are currently trained in HE. Those skills that are explicitly trained in HE, i.e. communication and teamwork, appear to be well developed in graduates. However, other essential soft skills, importantly lack in graduates. In other words, the soft skills gap exists.

2. A rank order of the most essential soft skills seems impossible to compose. A large, broad set of soft skills are considered as very important for graduates. Moreover, a soft skills profile should be rather dynamic than fixed, allowing flexible adjustment to contextual factors (e.g. time in one's career, the specific job, job sector, and workplace one is working in, and the broader societal context). Yet, some soft skills (i.e. interpersonal skills, communication, flexibility, and stress management) are considered universally important in any context. Other skills (e.g. (personal) leadership) are not considered a primary learning outcome for graduates as these skills require more time to grow throughout one's career and cannot be expected to be fully crystallized at time of graduation.

3. While there is consensus that soft skills should be taught in HE, less agreement exists on whether all essential soft skills can be taught in HE. While the 'harder' and more concrete soft skills (e.g. communication, team work, critical thinking, interdisciplinary thinking, and problem solving) are considered trainable in HE, doubts exist whether other, more personal soft skills (e.g. stress management and self-reflection) can be trained in HE.

4. The development of soft skills requires two essential aspects: (1) connectedness, as defined by close, dynamic interactions between students, HE, and stakeholders beyond HE, and (2) continuity, guaranteeing an uninterrupted process (starting before HE, continuing during HE, and further evolving during one's career track) that requires continuous reflection on progress made and actions to undertake to stimulate growth.

5. No firm conclusions can be drawn regarding the effectivity of studied soft skills interventions. Too few studies test the effectiveness of soft skills interventions using experimental research designs. Furthermore, the associations between soft skills interventions and outcomes is largely dependent on the observational design used.

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<sup>1</sup> In the present report, the terms of soft skills, life skills and transversal skills will be used interchangeably.

## EXECUTIVE SUMMARY (GREEK)

Οι ήπιες δεξιότητες αναγνωρίζονται ευρέως ως καθοριστικής σημασίας για την ευημερία και την επιτυχία στη ζωή. Ως εκ τούτου, η Ευρωπαϊκή Ένωση έχει συμπεριλάβει τις ήπιες δεξιότητες ως προτεραιότητα στο θεματολόγιο δεξιοτήτων για τη βελτίωση της απασχολησιμότητας, της συμπερίληψης και της ανθεκτικότητας (<https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>). Ωστόσο, η εφαρμογή της κατάρτισης σε ήπιες δεξιότητες στην τριτοβάθμια εκπαίδευση παραμένει υπό συστηματική διερεύνηση.

Στόχος της παρούσας έκθεσης είναι να παρέχει μια τεκμηριωμένη σύνθεση, ώστε να γίνει καλύτερα κατανοητό (1) πόσο σημαντικές είναι οι ήπιες δεξιότητες για τους αποφοίτους/ες, (2) ποιες ήπιες δεξιότητες θεωρούνται ως οι πιο ουσιώδεις, (3) εάν και με ποιον τρόπο αυτές οι ήπιες δεξιότητες μπορούν και πρέπει να διδαχθούν στην ανώτατη εκπαίδευση. Για τον σκοπό αυτό, παραθέτουμε μια σύνθεση πορισμάτων από α) συστηματική ανασκόπηση επιστημονικής βιβλιογραφίας, β) έρευνα με ομάδες εστίασης και γ) έρευνα με τη χρήση ερωτηματολογίου. Τα ευρήματα μπορούν να συνοψιστούν σε 5 κύρια σημεία:

1. Οι ήπιες δεξιότητες θεωρούνται απαραίτητες για όλες τις πτυχές της απασχολησιμότητας, καθώς και για την ευημερία στη ζωή γενικότερα, από τους φοιτητές/ριες, τους/τις επαγγελματίες της τριτοβάθμιας εκπαίδευσης και άλλους επαγγελματίες. Παρά τη σπουδαιότητα των ήπιων δεξιοτήτων, λίγες από αυτές τις δεξιότητες διδάσκονται επί του παρόντος στην ανώτατη εκπαίδευση. Οι δεξιότητες που διδάσκονται συστηματικά στην ανώτατη εκπαίδευση, δηλαδή η επικοινωνία και η ομαδικότητα, φαίνεται να είναι καλά ανεπτυγμένες στους/στις πτυχιούχους. Ωστόσο, σε άλλες βασικές ήπιες δεξιότητες, οι απόφοιτοι δείχνουν να υπολείπονται. Με άλλα λόγια, είναι εμφανές το κενό στην καλλιέργεια δεξιοτήτων.

2. Φαίνεται ότι είναι αδύνατο να υπάρξει μια ιεραρχική κατάταξη με τις πιο βασικές ήπιες δεξιότητες. Ένα ευρύ σύνολο ήπιων δεξιοτήτων θεωρείται, ωστόσο, πολύ σημαντικό για τους/τις απόφοιτους. Επιπρόσθετα, ένα προφίλ που θα περιλαμβάνει τις ήπιες δεξιότητες θα πρέπει μάλλον να είναι περισσότερο δυναμικό παρά σταθερό, επιτρέποντας την ευέλικτη προσαρμογή σε παράγοντες που αφορούν το εκάστοτε πλαίσιο (π.χ. σε φάση σταδιοδρομίας, σε συγκεκριμένη θέση εργασίας, στον τομέα εργασίας και στο χώρο στον οποίο εργάζεται ένα άτομο καθώς και στο ευρύτερο κοινωνικό πλαίσιο). Ωστόσο, ορισμένες ήπιες δεξιότητες (π.χ. διαπροσωπικές δεξιότητες, επικοινωνία, ευελιξία και διαχείριση του άγχους) θεωρούνται καθολικά σημαντικές σε οποιοδήποτε πλαίσιο. Άλλες δεξιότητες (π.χ. (προσωπική) ηγεσία) δεν θεωρούνται κύριο αντικείμενο μάθησης για τους/τις αποφοίτους, καθώς οι δεξιότητες αυτές απαιτούν περισσότερο χρόνο για να αναπτυχθούν καθ' όλη τη διάρκεια της σταδιοδρομίας τους και δεν αναμένεται ότι θα έχουν πλήρως παγιωθεί τη στιγμή της αποφοίτησής τους.

3. Μολονότι υπάρχει ομοφωνία ότι οι ήπιες δεξιότητες θα πρέπει γενικά να διδάσκονται στην ανώτατη εκπαίδευση, υπάρχει ασυμφωνία σχετικά με το κατά πόσον μπορούν να διδαχθούν όλες οι βασικές δεξιότητες. Ενώ οι «σκληρότερες» και πιο ξεκάθαρες ήπιες δεξιότητες (π.χ. επικοινωνία, ομαδικότητα, κριτική σκέψη, διεπιστημονική σκέψη και επίλυση προβλημάτων) θεωρούνται εκπαιδευσιμες, υπάρχουν αμφιβολίες κατά πόσον μπορούν να διδαχθούν άλλες, πιο προσωπικές ήπιες δεξιότητες (π.χ. διαχείριση του άγχους και αναστοχασμός) στην ανώτατη εκπαίδευση.

4. Η ανάπτυξη ήπιων δεξιοτήτων περιλαμβάνει απαραίτητα δύο βασικές διαστάσεις: 1) τη συνδεσιμότητα, όπως ορίζεται από τις στενές, δυναμικές αλληλεπιδράσεις μεταξύ φοιτητών/ριων, ανώτατης εκπαίδευσης

και ενδιαφερόμενων μερών εκτός αυτής, και (2) την ύπαρξη συνέχειας που εγγυάται μια αδιάλειπτη διαδικασία (έναρξη από την ανώτατη εκπαίδευση, συνέχιση κατά τη διάρκεια των σπουδών και περαιτέρω ανάπτυξη κατά τη διάρκεια της σταδιοδρομίας) η οποία απαιτεί τακτικό αναστοχασμό σχετικά με την πρόοδο που έχει σημειωθεί και ενέργειες που προάγουν την ανάπτυξη.

5. Δεν μπορούν να εξαχθούν σαφή συμπεράσματα όσον αφορά την αποτελεσματικότητα των παρεμβάσεων που μελετήθηκαν και αφορούν τις ήπιες δεξιότητες. Πολύ λίγες μελέτες έχουν διερευνήσει την αποτελεσματικότητα των παρεμβάσεων των ήπιων δεξιοτήτων με τη χρήση πειραματικών ερευνητικών σχεδίων. Επιπλέον, οι συσχετισμοί μεταξύ των παρεμβάσεων και των αποτελεσμάτων των ήπιων δεξιοτήτων εξαρτώνται σε μεγάλο βαθμό από τη μέθοδο έρευνας που εφαρμόζεται.



## EXECUTIVE SUMMARY (SPANISH)

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Las habilidades blandas son ampliamente reconocidas como de gran importancia para prosperar en la vida. Por ello, la Unión Europea ha añadido las habilidades blandas como una prioridad para la Agenda de Capacidades para el desarrollo de la empleabilidad, la inclusión y la resiliencia (<https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>). Sin embargo, la implementación de formación en habilidades blandas en la Educación Superior sigue siendo objeto de gran escrutinio.

El objetivo de este informe es proporcionar una síntesis de la evidencia para una mayor comprensión de (1) la importancia de las habilidades blandas para los graduados, (2) qué habilidades blandas son las más esenciales, y (3) cómo estas habilidades blandas pueden y deben ser enseñadas en la Educación Superior. Para ello, hemos integrado los resultados tras llevar a cabo una revisión sistemática, así como realizar los resultados de la implementación de grupos focales y una encuesta. Las conclusiones pueden resumirse en 5 puntos.

1. Los estudiantes, los profesionales de la educación superior y otros profesionales consideran que las habilidades blandas son esenciales para todos los aspectos de la empleabilidad y para prosperar en la vida en general. A pesar de la importancia de las habilidades blandas, pocas son formadas actualmente en la Educación Superior. Estas habilidades que sí se forman explícitamente en la Educación Superior, por ejemplo, la comunicación y el trabajo en equipo, parecen estar bien desarrolladas en los graduados. Sin embargo, en otras habilidades blandas esenciales, hay carencias importantes. En otras palabras, existe una brecha de habilidades blandas.

2. Hay una diversidad en el establecimiento de una jerarquía para la clasificación de las habilidades blandas más esenciales. Los graduados consideran como muy importantes un amplio conjunto de habilidades blandas. Además, el perfil en habilidades blandas debería ser más dinámico que fijo, permitiendo un ajuste flexible a los factores contextuales (por ejemplo, el tiempo que se lleva en la carrera, el trabajo específico, el sector laboral y el lugar de trabajo, así como el contexto social). Sin embargo, algunas habilidades blandas (por ejemplo, las habilidades interpersonales, la comunicación, la flexibilidad y la gestión de estrés) se consideran universalmente importantes en cualquier contexto. Otras habilidades (por ejemplo, el liderazgo [personal]) no se consideran resultado de un aprendizaje primario para los graduados, ya que estas habilidades requieren más tiempo para crecer a lo largo de la carrera y no se puede esperar que estén totalmente cristalizadas en el momento de la graduación.

3. Si bien existe consenso sobre la necesidad de entrenar al alumnado de Educación Superior en las habilidades blandas, hay menos acuerdo sobre si todas las habilidades blandas pueden ser enseñadas. Mientras que las habilidades blandas más "duras" y concretas (por ejemplo, la comunicación, el trabajo en equipo, el pensamiento crítico, el pensamiento interdisciplinario y la resolución de problemas) se consideran entrenables en la Educación Superior, existen dudas sobre si otras habilidades blandas más personales (por ejemplo, la gestión del estrés y la autorreflexión) pueden entrenarse en la Educación Superior.

4. El desarrollo de las habilidades blandas requiere dos aspectos esenciales: (1) conectividad, definida por interacciones estrechas y dinámicas entre los estudiantes, la Educación Superior y las partes interesadas más allá de la Educación Superior, y (2) continuidad, garantizando un proceso ininterrumpido (que

comienza antes de la Educación Superior, continúa durante la misma y sigue evolucionando durante la trayectoria profesional) que requiere una reflexión continua sobre los progresos realizados y las acciones a emprender para estimular el crecimiento.

5. No se pueden extraer conclusiones firmes sobre la eficacia de las intervenciones en materia de habilidades blandas. Son muy pocos los estudios que han examinado la eficacia de estas intervenciones mediante el uso de diseños de investigación experimentales. Además, las asociaciones entre las intervenciones en habilidades blandas y los resultados obtenidos dependen en gran medida del diseño observacional utilizado.

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## EXECUTIVE SUMMARY (DUTCH)

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Soft skills (levensvaardigheden of transversale vaardigheden) worden algemeen erkend als instrumenteel om het goed te doen in het leven en voor zelfontplooiing. Daarom heeft de Europese Unie soft skills als prioriteit toegevoegd aan de vaardighedenagenda om de inzetbaarheid op de werkvloer, inclusiviteit en veerkracht te verbeteren (<https://ec.europa.eu/social/main.jsp?catId=1223&langId=en>). Toch wordt de implementatie van de training van soft skills in het hoger onderwijs nog steeds kritisch benaderd.

Het doel van dit rapport is om een synthese te maken van evidentie, om beter te begrijpen (1) hoe belangrijk soft skills zijn voor afgestudeerden, (2) welke soft skills het meest essentieel zijn, (3) of en hoe deze soft skills kunnen en moeten aangeleerd worden in het hoger onderwijs. Hiervoor werden de bevindingen van een systematische review, focusgroepen en een enquête geïntegreerd. De bevindingen kunnen samengevat worden in 5 conclusies.

1. Soft skills worden door studenten, professionals in het hoger onderwijs en andere professionals als essentieel beschouwd voor alle aspecten van inzetbaarheid op de werkvloer en om het goed te doen in het leven in het algemeen. Ondanks het belang van soft skills, worden er momenteel weinig soft skills getraind in het hoger onderwijs. De soft skills die expliciet worden getraind in het hoger onderwijs, namelijk communicatie en teamwork, blijken bij afgestudeerden goed ontwikkeld te zijn. Andere essentiële soft skills ontbreken echter bij afgestudeerden. Met andere woorden, een soft skills gap bestaat.

2. Een rangorde van de meest essentiële soft skills blijkt niet aan de orde te zijn. Een brede set aan soft skills wordt als zeer belangrijk beschouwd voor afgestudeerden. Bovendien moet een soft-skills-profiel eerder dynamisch dan vast zijn, zodat het flexibel kan worden aangepast aan contextuele factoren (bijv. waar iemand zich bevindt in zijn loopbaan, de specifieke job, de beroepssector, de werkplek waar men werkt, en de bredere maatschappelijke context). Toch worden sommige soft skills (zoals interpersoonlijke vaardigheden, communicatie, flexibiliteit en stressmanagement) in elke context als universeel belangrijk beschouwd. Andere vaardigheden (bijv. (persoonlijk) leiderschap) worden niet beschouwd als een primaire leeruitkomst voor afgestudeerden, aangezien deze vaardigheden meer tijd nodig hebben om te groeien gedurende de loopbaan en er niet kan verwacht worden dat ze volledig worden uitgekristalliseerd op het moment van afstuderen.

3. Hoewel men het erover eens is dat soft skills in het hoger onderwijs moeten worden onderwezen, bestaat er minder consensus over de vraag of alle essentiële soft skills in het hoger onderwijs kunnen worden onderwezen. Hoewel de 'hardere' en meer concrete soft skills (bijv. communicatie, teamwork, kritisch denken, interdisciplinair denken en probleemoplossend denken) worden beschouwd als ontwikkelbaar in het hoger onderwijs, bestaat er twijfel of andere, meer persoonlijke soft skills (bijv. stressmanagement en zelfreflectie) getraind kunnen worden in het hoger onderwijs.

4. De ontwikkeling van soft skills vereist twee essentiële aspecten: (1) verbondenheid, door middel van nauwe, dynamische interacties tussen studenten, het hoger onderwijs en belanghebbenden buiten het hoger onderwijs, en (2) continuïteit, een ononderbroken proces dat begint vóór het hoger onderwijs, doorgezet wordt tijdens het hoger onderwijs en verder ontwikkeld wordt tijdens het loopbaantraject, waarbij

voortdurend gereflecteerd wordt over de gemaakte vooruitgang en acties die ondernomen moeten worden om groei te stimuleren.

5. Er kunnen geen harde conclusies worden getrokken over de effectiviteit van onderzochte soft-skills-interventies. Te weinig studies testten de effectiviteit van soft-skills-interventies met behulp van experimentele onderzoeksopzetten. Bovendien zijn de associaties tussen soft-skills-interventies en uitkomsten grotendeels afhankelijk van het gebruikte observationele onderzoeksopzet.

## MIND THE SKILLS GAP: WHY EVIDENCE SYNTHESIS, AND HOW?

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Despite the global consensus that soft skills should be part of an agenda for HE, it remains highly debated how soft skills development can and should be implemented in HE. As a result, research on the effectivity of soft skills intervention in HE is very rich. Current research on the role of soft skills development and its implementation in HE focuses mostly on qualitative research (presenting theoretical models, qualitative reviews, and qualitative studies), and quantitative studies mostly investigate specific interventions in specific higher education programs in specific student populations.

However, to achieve systemic changes and a methodical culture shift in HE, integrated approaches in soft skills development need to transcend program and student specificity. In order to develop innovative soft skills interventions that can be implemented across HE programs and disciplines, research findings need to be summarized across study programs or student populations.

Therefore, the goal of this evidence synthesis is to gather qualitative and quantitative evidence concerning best practices for soft skills development in higher education, independent of specific study programs or student populations. To do so, we will synthesize evidence by means of:

- (1) a systematic review,
- (2) comparative focus groups including relevant stakeholders<sup>2</sup> in four European countries (Cyprus, Greece, Spain, and the Netherlands) and
- (3) a crowdsourced survey in relevant stakeholders<sup>2</sup>.

These three methods will provide complementary evidence on:

- whether and which soft skills should be taught in HE (2 and 3),
- which soft skills are considered most important for graduates (2 and 3),
- which soft skills can be trained by soft skills interventions in HE (1, 2, and 3),
- how soft skills should be trained in HE (1, 2, and 3).

Altogether, this will provide insight into which soft skills have priority for soft skills development in HE, and effective practices to develop these skills in the HE curriculum.

In this report, evidence from the three methods will be systematically discussed, after which integrated conclusions and recommendations will be formulated.

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<sup>2</sup> Stakeholders were defined by a specific [stakeholder consultation protocol](#).  
An overview of stakeholders relevant for skills development in HE can be found [here](#).

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# SYSTEMATIC REVIEW

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## **Aim**

To summarize the existing literature on the effectivity of soft skills intervention in HE, a systematic review was conducted.

The main aim was to gain insight into the question:

Is soft skills training effective in improving soft skills and employability in HE students?

In addition, more specific research questions were formulated:

1. Which soft skills interventions are associated with improvements in which soft skills?
2. Which soft skills interventions have been studied most?
3. Which soft skills have been studied most? For which soft skills exists a substantial research gap?

## **Methods**

### ***Protocol and Registration***

The review protocol was registered in Prospero (CRD42021236944: Systematic review and meta-analysis on the efficacy of soft skills training on the development of soft skills in higher education students).

### ***Eligibility Criteria***

Studies were considered eligible for inclusion in the review when consistent with the following criteria concerning populations, interventions, comparisons and outcomes.

### ***Populations***

Studies investigating higher education students including university, college, and vocational students, were included. Studies investigating graduate students, students with disabilities, and students in specific programs (e.g. dentistry, nursing...) were not excluded.

### ***Interventions***

Because our research question focuses on which intervention types and intervention elements influence soft skills, studies investigating any intervention or implemented program, either integrated (curricular) or parallel (extracurricular) to the traditional curriculum in higher education, were included. Thus, interventions that included specific soft skills training, work simulations, career training, interventions as part of the traditional curriculum, work-integrated learning, internships, apprenticeships, and international travel programs.

**Comparisons**

Studies were included when they assessed the effects of an intervention by comparing outcomes to a within-subject baseline control measurement (pre vs. post intervention), and/or by comparing an intervention group or cohort to a control group or cohort not receiving the intervention.

**Outcomes**

Studies were included when they assessed at least one quantitative outcome of the following:

employability or employability level (e.g., employability at the level of the obtained degree or not), specific soft skills or integrated soft skills outcomes, either objectively measured, self-assessed, or assessed by others (e.g. teachers, lecturers, employers). Outcomes that involved technical, hard skills, including grades assessing these, were excluded.

**Study Designs**

Studies with the following research designs were included: (quasi-) experimental studies including a within-subject baseline comparison and/or a control group comparison, non-experimental comparative cohort studies, and mixed methods studies. Meta-analyses and systematic reviews were included for reference checks.

Studies with the following research designs were excluded: non-experimental non-comparative studies (such as descriptive studies, case or multiple case studies, correlational research in the absence of a comparison), qualitative studies, and narrative reviews.

**Information sources**

The search included the following databases: ERIC, PsycArticles, PsycINFO, Teacher Reference Center, Psychology, and Behavioral Sciences Collection, Open dissertations, PubMed, Web of Science, Scopus, and EMBASE.

**Search**

The following search strategy was used:

(employability skills OR transversal skills OR life skills OR soft skills) [Abstract]

AND (training OR education OR development OR learning or intervention or program) [Abstract]

AND (university OR college OR higher education).

No restrictions were set on publication period. Only English articles were included. No specific search was performed to track unpublished studies. Conference abstracts were excluded, however, dissertations were included (e.g., via the Open dissertations database).

**Study Selection**

Study selection was performed based on in- and exclusion criteria as outlined in the eligibility criteria. Two reviewers (RP and MP) independently, and blind to each other's decisions, screened all records, first based

on abstract only, and afterward based on full text. Disagreements in any of these two stages were solved by discussions with a third reviewer (EV).

### **Data collection process**

Extraction of data was recorded in a spreadsheet, based on the Cochrane “Data collection form for intervention reviews: RCTs and non-RCTs”, by two independent reviewers (RP and MP), and moderated by a third reviewer (EV). The data extraction file can be found [here](#).

### **Data items**

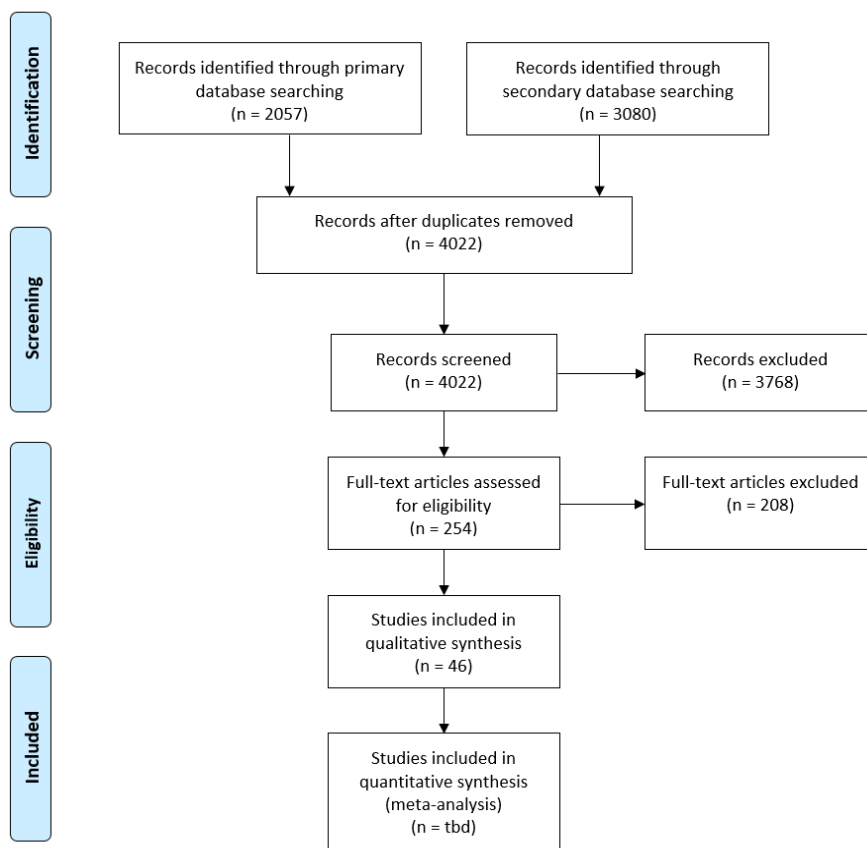
For this report, only full articles accessible by licenses of UCY and VUA were included.

## **Results**

### **Study selection**

The PRISMA flow diagram illustrates the number of included studies at each stage of study selection (Figure 1). A total of 46 studies were included in the systematic review.

Figure 1.  
PRISMA flow diagram.





### ***Study Characteristics***

In total, the 46 selected studies included 29362 participants (Nmean = 638.30, Nmedian = 124.5, Nmin = 19, Nmax = 9800), 339 measured soft skills outcomes, and 306 reported findings on those soft skills outcomes.

Table 1 gives an overview of the study characteristics of the 46 included studies, and Table 2 provides a summary of interventions and outcomes. Tables 3 and 4 report the number of studies and the number of measured outcomes, resp., for each intervention category and outcome category.

### ***Populations***

Undergraduates were the most common studied population (N studies = 35). Six studies investigated graduate students and four studies investigated a mix of both. One study did not provide information on the level of study of the sample. Samples most commonly included students from Economics, Business and Management programs and/or courses (N studies = 10) and (Bio-)Medical Sciences (N studies = 7).

### ***Interventions***

Soft skills interventions were classified in one of four intervention categories: (1) experiential /team-based/project-based/problem-based learning, (2) career training/personal development programs/mentorship, (3) internships/apprenticeships/placements, and (4) specific interventions targeting specific soft skills (described below). The duration of interventions varied from a single session (e.g. for a specific intervention) to one year (e.g. for a placement).

Studied soft skills interventions included mostly experiential learning interventions (N studies = 27), which involved work-integrated learning, work simulations, community service learning, project-, team- and problem-based learning. Of those 27 experiential learning interventions, 24 were integrated into the curriculum, whereas 3 were parallel interventions.

Thirteen interventions were classified as specific interventions, of which 8 were integrated into the curriculum and 5 were parallel interventions. Specific interventions involved leadership courses, wellbeing courses, sex education, reading-writing workshops, yoga, and specific life skills interventions. The latter trained students in a set of soft skills, such as assertiveness, stress and emotion management, communication, decision making, problem-solving, time management, self-awareness, critical thinking, and teamwork.

Five interventions involved career training, mentorship, or personal development programs, all of which were integrated into the curriculum.

One study investigated a work placement that was parallel to the curriculum.

### ***Comparisons and Study designs***

Most studies (N studies = 21) assessed the effectivity of the soft skills intervention by comparing soft skills before and after the intervention. Twelve studies made group comparisons, comparing two cohorts or students in a cohort who did or did not participate in the intervention. Thirteen studies made both within (pre-post) and between-group comparisons. Of these 13 studies, only 4 studies were randomized controlled trials in which students were randomly assigned to the intervention or control group. Two studies assessed

outcomes not only pre and post intervention but also during follow-up, one at 3 months and one at 16 weeks.

### ***Outcomes***

Outcomes involved employability and soft skills. Soft skills outcomes were classified in one of eight soft skills categories: soft skills compound, communication skills, social/interpersonal skills, analytical skills, emotion regulation, organizational skills, flexibility, self-regulation, career skills, other personal skills (according to the classification system available in Appendix 1).

The most studied soft skills outcomes were social skills (N studies = 27, N outcomes = 51), communication (N studies = 21, N outcomes = 39) and analytical skills (N studies = 23, N outcomes = 44). Social skills involved teamwork, understanding others' feelings, socioeconomic- or intercultural awareness and understanding, and connectedness. Communication comprised verbal, written and digital communication, presentation skills, and listening. Analytical skills consisted of problem-solving, decision making, critical thinking, numeracy, advanced IT skills, and research skills.

Also, personal skills were often measured, including self-regulation (N studies = 20, N outcomes = 48, e.g., self-management, self-awareness, self-efficacy, self-esteem, self-knowledge, autonomy, and motivation) and other personal skills (N studies = 17, N outcomes = 46, e.g., leadership, management and entrepreneurial skills, learning, initiative, responsibility, ethics, moral development and honesty, being civic-minded and philanthropy).

The least investigated outcomes were emotion regulation skills (N studies = 9, N outcomes = 11), career skills (N studies = 7, N outcomes = 18), and employability (N studies = 4, N outcomes = 14). Emotion regulation was measured by emotion management, resilience, grit, emotional competence, and working under pressure. Career skills consisted of career planning and management. Employability was quantified by perceived employability, being employed and registered for social security, having a formal contract, salary, and income.

With exception of measures of employability (see above) and one study assessing skills as perceived by a mentor, all studies assessed soft skills outcomes as perceived by students.

### ***Synthesis of results***

The findings of each of the 46 selected studies are summarized in Table 5, indicating whether increases, no differences, decreases, or mixed findings were found for each of the study's outcomes. Below, we will discuss the findings by outcome category and by intervention category.

Overall, it seemed that some soft skills were influenced by soft skills interventions more than others. Some soft skills showed predominantly improvements in response to soft skills interventions, such as communication (26 of 37 reported findings; 70%), social skills (30 of 45 reported findings; 67%), emotion regulation skills (7 of 11 reported findings; 64%), and flexibility (13 of 20 reported findings; 62%). Some soft skills predominantly showed no differences in response to soft skills interventions, such as employability (11 of 14 reported findings; 79%) and self-regulation (23 of 42 reported findings; 55%). The remainder of the soft skills showed the same number of findings showing improvements and no differences in response to soft skills interventions, such as analytical, organizational, career, and other personal skills.

Table 5.

Reported findings on studies examining the various outcome categories reported.

N of reported findings	=	↑	↑↓	↓
EMPLOYABILITY	11	3	0	0
COMPOUND	6	14	1	0
SOCIAL/INTERPERSONAL	13	30	2	0
COMMUNICATION	11	26	0	0
ANALYTICAL	18	19	0	1
EMOTIONAL	4	7	0	0
ORGANIZATIONAL	11	12	0	1
FLEXIBILITY	7	13	1	0
SELF-REGULATION	23	18	1	0
OTHER PERSONAL	19	18	1	0
CAREER	8	7	0	0

Notes. = refers to no differences in soft skills, ↑ refers to improvement of soft skills, ↑↓ refers to mixed findings, ↓ refers to a decrease in soft skills

All intervention categories, except specific interventions, were predominantly associated with improvements in soft skills, although some more than others. Career training, personal development programs, and mentorship overall resulted in improvement of soft skills (16 of 21 findings; 76%). Also, a placement resulted in improvement of soft skills (9 of 15 findings; 60%). Experiential learning resulted in a (slight) majority of findings showing improvement of soft skills (117 of 220 findings; 53%). Specific interventions resulted in the same proportion of improvement (25 of 50 findings; 50%) and no differences (22 of 50 findings, 44%) in soft skills.

Next, we will discuss the findings for each intervention category.

**Studies examining experiential learning interventions.** The effectivity of experiential learning interventions (Table 6) seemed dependent on the research design of the study. Studies investigating time differences comparing soft skills before and after the intervention mostly found improvement of soft skills following the intervention; 89 findings showed improvement of soft skills (of which 33 examining social skills and communication), 31 findings (of which 8 examining career skills) involved no differences and 3 findings involved mixed findings. Studies investigating group differences between an experiential learning intervention group and a control group mostly found no differences; 56 findings (12 on analytical skills and 11 on self-regulation) involved no differences, 20 findings showed increases in soft skills and 2 showed decreases in soft skills. Of the latter, one finding refers to the ability to work independently<sup>3</sup> following problem-based learning in an engineering program, and another finding refers to understanding the relationship between theory and practice following project-based learning in an aerospace engineering program. Of studies examining both time and group differences, the majority of findings (N=11) showed no differences, while 8 findings showed improvement of skills. Of those 8 findings, 5 showed improvement of social skills. Four of those 8 findings derive from randomized controlled trials (RCTs).

<sup>3</sup> The ability to work independently in this study was categorized as an organizational skill, part of a set of organizational skills (e.g. the ability to work with projects, the ability to work in a structured way, the ability to meet deadlines).

Table 6.  
Reported findings on studies examining experiential learning interventions

N of reported findings	EXPERIENTIAL LEARNING/TEAM/PROJECT/PROBLEM BASED LEARNING											
	prepost				groups				both			
	=	↑	↑↓	↓	=	↑	↑↓	↓	=	↑	↑↓	↓
EMPLOYABILITY	0	0	0	0	0	0	0	0	0	0	0	0
COMPOUND	1	9	1	0	3	1	0	0	0	0	0	0
SOCIAL	3	17	0	0	7	3	0	0	1	5	0	0
COMMUNICATION	2	16	0	0	4	3	0	0	2	1	0	0
ANALYTICAL	2	9	0	0	12	2	0	1	0	2	0	0
EMOTIONAL	1	2	0	0	2	0	0	0	0	0	0	0
ORGANIZATIONAL	3	8	0	0	7	3	0	1	1	0	0	0
FLEXIBILITY	2	9	1	0	3	1	0	0	2	0	0	0
SELF-REGULATION	5	7	0	0	11	3	0	0	1	0	0	0
OTHER PERSONAL	4	10	1	0	7	4	0	0	4	0	0	0
CAREER	8	2	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>31</b>	<b>89</b>	<b>3</b>	<b>0</b>	<b>56</b>	<b>20</b>	<b>0</b>	<b>2</b>	<b>11</b>	<b>8</b>	<b>0</b>	<b>0</b>

Notes. = refers to no reported differences in soft skills, ↑ refers to improvement of soft skills, ↑↓ refers to mixed findings, ↓ refers to a decrease in soft skills

**Studies examining specific interventions.** Also, conclusions on the effectivity of specific interventions (Table 7) depended on the study design. All findings (N=8) based on time differences comparing soft skills pre vs. post intervention showed improvement of soft skills. However, the majority of findings involving group differences between a specific intervention group and a control group showed no differences in soft skills; 14 findings involved no differences compared to 4 findings that showed improvement of soft skills (of which 3 involved communication skills). In studies examining both time and group differences, 3 findings showed mixed results, 8 RCT findings on employability showed no differences, while 13 findings did show improvement of soft skills. Of these 13 findings, 5 involved RCT findings, of which 4 on emotion regulation skills and 1 on social skills. The RCT findings mentioned involved one RCT studying a soft skills intervention, focusing on effective communication, writing, team building and teamwork, time management, positive thinking, and career skills.

Table 7.  
Reported findings on studies examining specific interventions

N of reported findings	SPECIFIC INTERVENTION											
	prepost				groups				both			
	=	↑	↑↓	↓	=	↑	↑↓	↓	=	↑	↑↓	↓
EMPLOYABILITY	0	0	0	0	2	0	0	0	8	0	0	0
COMPOUND	0	0	0	0	2	0	0	0	0	1	0	0
SOCIAL	0	2	0	0	2	0	0	0	0	1	2	0
COMMUNICATION	0	1	0	0	2	3	0	0	0	1	0	0
ANALYTICAL	0	1	0	0	2	0	0	0	0	2	0	0
EMOTIONAL	0	0	0	0	0	0	0	0	0	5	0	0
ORGANIZATIONAL	0	1	0	0	0	0	0	0	0	0	0	0
FLEXIBILITY	0	0	0	0	0	0	0	0	0	1	0	0
SELF-REGULATION	0	0	0	0	2	1	0	0	0	2	1	0
OTHER PERSONAL	0	3	0	0	2	0	0	0	0	0	0	0
CAREER	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>14</b>	<b>4</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>13</b>	<b>3</b>	<b>0</b>

Notes. = refers to no reported differences in soft skills, ↑ refers to improvement of soft skills, ↑↓ refers to mixed findings, ↓ refers to a decrease in soft skills

**Studies examining career training, personal development programs, and mentorship.** Regardless of the study design, career training, personal development programs, and mentorship appeared to be effective interventions for soft skills development (Table 8). The majority of findings (N=16) show improvement of skills, including employability, career skills, social skills, flexibility, and self-regulation. Only 4 findings on self-regulation and 1 finding on emotion regulation skills did not show differences in soft skills.

**Studies examining internships, apprenticeships, and placements.** The one study that examined a work placement reported more findings showing improvement of soft skills (N=9) than findings showing no differences (N=6) (Table 9). Improvement of skills involved employability (with exception of salary of the first job after graduation), social skills, analytical skills (with exception of advanced IT skills and research skills), and flexibility. No differences were found for leadership and entrepreneurial skills, but improvements were found for management skills.

Table 8.

Reported findings on studies examining career training, personal development programs, and mentorship

N of reported findings	CAREER TRAINING/PDP/MENTORSHIP											
	prepost				groups				both			
	=	↑	↑↓	↓	=	↑	↑↓	↓	=	↑	↑↓	↓
EMPLOYABILITY	0	1	0	0	0	0	0	0	0	0	0	0
COMPOUND	0	1	0	0	0	0	0	0	0	2	0	0
SOCIAL	0	1	0	0	0	0	0	0	0	0	0	0
COMMUNICATION	0	0	0	0	0	0	0	0	0	0	0	0
ANALYTICAL	0	0	0	0	0	0	0	0	0	0	0	0
EMOTIONAL	1	0	0	0	0	0	0	0	0	0	0	0
ORGANIZATIONAL	0	0	0	0	0	0	0	0	0	0	0	0
FLEXIBILITY	0	1	0	0	0	0	0	0	0	0	0	0
SELF-REGULATION	4	3	0	0	0	0	0	0	0	2	0	0
OTHER PERSONAL	0	0	0	0	0	0	0	0	0	0	0	0
CAREER	0	1	0	0	0	0	0	0	0	4	0	0
<b>TOTAL</b>	<b>5</b>	<b>8</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>8</b>	<b>0</b>	<b>0</b>

Notes. = refers to no reported differences in soft skills, ↑ refers to improvement of soft skills, ↑↓ refers to mixed findings, ↓ refers to a decrease in soft skills

Table 9.

Reported findings on studies examining internships, apprenticeships, and placements

N of reported findings	INTERNSHIP/APPRENTICESHIP/PLACEMENT											
	prepost				groups				both			
	=	↑	↑↓	↓	=	↑	↑↓	↓	=	↑	↑↓	↓
EMPLOYABILITY	0	0	0	0	1	2	0	0	0	0	0	0
COMPOUND	0	0	0	0	0	0	0	0	0	0	0	0
SOCIAL	0	0	0	0	0	1	0	0	0	0	0	0
COMMUNICATION	0	0	0	0	1	1	0	0	0	0	0	0
ANALYTICAL	0	0	0	0	2	3	0	0	0	0	0	0
EMOTIONAL	0	0	0	0	0	0	0	0	0	0	0	0
ORGANIZATIONAL	0	0	0	0	0	0	0	0	0	0	0	0
FLEXIBILITY	0	0	0	0	0	1	0	0	0	0	0	0
SELF-REGULATION	0	0	0	0	0	0	0	0	0	0	0	0
OTHER PERSONAL	0	0	0	0	2	1	0	0	0	0	0	0
CAREER	0	0	0	0	0	0	0	0	0	0	0	0
<b>TOTAL</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>6</b>	<b>9</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

Notes. = refers to no reported differences in soft skills, ↑ refers to improvement of soft skills, ↑↓ refers to mixed findings, ↓ refers to a decrease in soft skills

## **Conclusions**

The literature on soft skills interventions in higher education is rich; a large variety of interventions and outcomes have been studied. Mostly undergraduates were subject of study, and most interventions were implemented in business and medical programs. Despite this large number of studies, most studies are qualitative or descriptive. In total, 46 studies were selected that compared quantitative soft skills outcomes or employability between groups and/or before and after intervention. Of these 46 studies, only 4 involved an RCT.

### ***Which soft skills and soft skills interventions have been studied most? For which soft skills exists a substantial research gap?***

The majority of studies examined integrated interventions of experiential learning that included team-, project-, or problem-based learning. The most frequently studied soft skills are social skills, communication, and analytical skills, while emotion regulation, career skills, and employability are least studied. The soft skills that are most likely to be improved by soft skills interventions are communication, social skills and emotion regulation skills, while employability and self-regulation are least likely to be affected. Important to note is that no studies assessed soft skills in an objective way or used performance measures of soft skills. The large majority of studies involved self-assessment of soft-skills by students.

### ***Which soft skills interventions are associated with improvement of which soft skills?***

Career training, personal development programs, and mentorship show to be consistently effective for soft skills training, including training of social skills, flexibility, career skills, and employability, with exception of self-regulation and emotion regulation. Effects of experiential learning and specific soft skills interventions are mostly dependent on the research design used; while improvements of soft skills are dominant for interventions comparing soft skills outcomes before and after the intervention, mostly no differences are found for group comparisons. Improvements of experiential learning interventions after, compared to before, the intervention were predominantly found for social skills, communication, analytical skills, organizational skills, flexibility, and other personal skills. However, for the same skills, mostly no differences were found for group differences. The four RCT findings on experiential learning interventions did show improvement of social skills, communication, and analytical skills. Specific skills interventions showed improvement in social skills, communication, analytical skills, organizational skills, and other personal skills after the intervention compared to before. However, mainly no differences were found for the same skills for group differences. One RCT focusing on a broad soft skills intervention found improvements in social and emotional skills, but not employability. The one placement study that was included, showed both improvement and no differences between groups.

### ***Is soft skills training effective in improving soft skills and employability in HE students?***

In sum, the pattern of results shows to be very dispersed. Due to the variety in samples, interventions and intervention components, soft skills outcomes, and measures, integration of results is difficult. Interventions that focus directly on career perspectives seem to be most effective.

Although self-assessments of changes in soft skills before and after the studied interventions indicate that soft skills interventions are associated with improvement of skills, changes in these observational studies may be due to effects of time, maturation, awareness..., and do thus not allow conclusions on intervention

effectivity. Altogether, better controlled studies, and RCTs specifically, are necessary to provide more conclusive evidence on the effectivity of soft skills interventions.

Table 1.  
Overview of study and study characteristics

Study	Authors	Publication Year	Population	Program/Course	Study N	Intervention	Intervention Category	Intervention Implementation	Comparison
1	Sambell et al.	2020	Undergraduate	Community Nutrition 3rd year	19	WORK INTEGRATED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
2	Choate et al.	2019	Undergraduate	Biomedical Sciences 1st year	824	PERSONAL DEVELOPMENT PROGRAM	CAREER TRAINING/PDP/MENTORSHIP	INTEGRATED	PREPOST
3	de Blaquiére et al.	2019	Both	No information; Undergraduate, Graduate, Post graduate research students and early career researchers	4019	EXPERIENTIAL LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	BOTH
4	James	2019	Undergraduate	Psychology	20	MENTORING	CAREER TRAINING/PDP/MENTORSHIP	INTEGRATED	PREPOST
5	Hains-Wesson & Ji	2019	Undergraduate	Study tour programme	43	INTERNATIONAL TRAVEL + EXPERIENTIAL LEARNING	EXPERIENTIAL LEARNING	PARALLEL	PREPOST
6	Wickam	2018	Graduate	Business	79	SERVICE LEARNING IN CAPSTONE	EXPERIENTIAL LEARNING	PARALLEL	GROUPS
7	Sinclair	2017	Undergraduate	Biomedical Sciences - 2nd year - Virology course	70	PRACTICAL LABORATORY SERIES	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
8	Mulrooney	2017	Undergraduate	No information, 2nd and 3rd year students	68	CO-CURRICULAR ACTIVITIES	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS
9	Wilton	2011	Undergraduate	Business and management	9800	WORK PLACEMENT	INTERNSHIP/APPRENTICESHIP/PLACEMENT	PARALLEL	GROUPS



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10	Tran et al.	2019	Undergraduate	Technical engineering	322	INTERCULTURAL COMMUNICATION CRITICAL INCIDENT TASK	EXPERIENTIAL LEARNING	INTEGRATED	BOTH
11	Christensen et al.	2018	Both	Accounting	210	TEAM-BASED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
12	Kouakou	2018	Undergraduate	CUNY Service Corps program	2310	CUNY SERVICE CORPS PROGRAM: EXPERIENTIAL LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
13	Jackson	2013	Undergraduate	No information	131	WORK INTEGRATED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
14	Levant et al.	2016	Undergraduate	Business	392	BUSINESS SIMULATION	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
15	Wickam	2015	Graduate	Business	107	CAPSTONE SERVICE LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS
16	Treleaven & Voola	2008	Graduate	Economics and Business	56	CONSTRUCTIVE ALIGNMENT	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS
17	Arendsdorf	2009	Undergraduate	No information	237	LEADERSHIP CERTIFICATION	SPECIFIC INTERVENTION	INTEGRATED	GROUPS
18	Klegeris	2020	Undergraduate	Biochemistry	89	MIXED MODE INSTRUCTION - PROBLEM-BASED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
19	Kolmos et al.	2020	Both	Engineering	3106	PROBLEM-BASED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS

20	Abushakra et al.	2019	No information	Participants in entrepreneurship competition across HEIs	125	COMPETITION BASED LEARNING	EXPERIENTIAL LEARNING	PARALLEL	PREPOST
21	Koes-H et al.	2019	Undergraduate	Physics	49	E-SCAFFOLDING IN HYBRID LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS
22	Yan et al.	2018	Undergraduate	International trade - 2nd year	29	AUS FAMILY WELL BEING COURSE	SPECIFIC INTERVENTION	INTEGRATED	PREPOST
23	Deep et al.	2019	Undergraduate	Effective communication course	57	PROBLEM-BASED AND E-LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
24	Seangpraw et al.	2017	Undergraduate	Medicine - 1st year Bachelor Community Health, Bachelor Environmental Health, Bachelor Occupational Health and Safety and Emergency Health Science	550	SEX EDUCATION AND LIFE SKILL TRAINING	SPECIFIC INTERVENTION	PARALLEL	BOTH

25	Lolaty et al.	2012	Undergraduate	Medical Sciences - 1st year Medicine, Pharmacy, Nursing and Midwifery, Paramedical Sciences, and Public Health	39	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	INTEGRATED	BOTH
26	Haji et al.	2011	Undergraduate	No information	26	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	PARALLEL	BOTH
27	Rezayat & Nayeri	2013	Undergraduate	Medical Sciences - Nursing	251	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	INTEGRATED	GROUPS
28	Brennan & Vos	2013	Undergraduate	Strategic marketing course - 3rd year	127	SIMULATION GAME	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
29	Miller & Rochford	2020	Undergraduate	No information, 1st-year freshmen and returning students	80	READING-WRITING WORKSHOP	SPECIFIC INTERVENTION	PARALLEL	PREPOST

30	Griffiths et al.	2018	Undergraduate	Economics and Business - Macro Economics, Micro Economics, Business Statistics, Basic Econometrics, Financial Markets, Business Finance, Marketing Research and Business to Business marketing courses	243	PEER-TO-PEER MENTORING	CAREER TRAINING/PDP/MENTORSHIP	INTEGRATED	PREPOST
31	Garcia et al.	2016	Undergraduate	Teacher Training, Pedagogy, Social Education, Business Management, Educational Psychology and Materials Engineering courses	893	EVALSOFT SYSTEM (VR SYSTEM)	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS
32	Rodriguez et al.	2015	Undergraduate	Aerospace Engineering degree	124	PROJECT-BASED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	GROUPS

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33	Moshki et al.	2014	Undergraduate	Medical Sciences - Public Health, Nursing, Operation Room and Anesthesia	60	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	INTEGRATED	BOTH
34	Hundhausen et al.	2013	Undergraduate	Program Design and Development course	140	PEDAGOGICAL CODE REVIEWS	SPECIFIC INTERVENTION	INTEGRATED	BOTH
35	Freudenberg	2009	Undergraduate	No information	170	PERSONAL DEVELOPMENT PROGRAM	CAREER TRAINING/PDP/MENTORSHIP	INTEGRATED	BOTH
36	Goldstein et al.	2016	Both	No information	74	YOGIC BREATHING-BASED LIFE SKILLS WORKSHOP	SPECIFIC INTERVENTION	PARALLEL	PREPOST
37	Goodwin et al.	2019	Undergraduate	No information	346	STAR (ARTICULATION PROGRAM)	SPECIFIC INTERVENTION	INTEGRATED	GROUPS
38	Ogbuanya & Chukwuuedo	2017	Undergraduate	No information	97	CAREER TRAINING AND MENTORSHIP	CAREER TRAINING/PDP/MENTORSHIP	INTEGRATED	BOTH
39	Hacisalihoglu et al.	2020	Undergraduate	Science and Technology - 1st year Scientist Life Skills course	505	SCIENTISTS LIFE SKILL COURSE	SPECIFIC INTERVENTION	INTEGRATED	BOTH
40	Imwattana et al.	2020	Undergraduate	Medicine	330	ACTIVE LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	BOTH
41	Radzi et al.	2020	Undergraduate	Quantitative Sciences - Decision Science degree program	64	BOARD GAME - SIMULATION	EXPERIENTIAL LEARNING	INTEGRATED	BOTH

42	Tadger et al. 2020		Graduate	Computer Science	28	PROBLEM-BASED LEARNING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
43	Gibbs & Slevitch	2019	Undergraduate	Hospitality management course	50	COMPETENCE TRAINING	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
44	Groh et al.	2016	Graduate	No information	1347	SOFT SKILLS TRAINING	SPECIFIC INTERVENTION	PARALLEL	BOTH
45	Whitehall et al.	2016	Undergraduate	No information	1623	COMMUNITY SERVICE PROJECT	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST
46	Selvaratnam et al.	2013	Graduate	Economics of Social Policy, Social and Political aspects of Development and Economics of Social Policy course	33	COMMUNITY ENGAGEMENT	EXPERIENTIAL LEARNING	INTEGRATED	PREPOST

Table 2.  
Overview of study interventions and outcomes

Study	Intervention	Intervention Category	Outcomes	Outcome category	Result
1	WORK INTEGRATED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Career Management Skills	career	INCREASE
			Academic Skills	analytical	INCREASE
			Communication	communication	INCREASE
			Interpersonal Skills	social/interpersonal	INCREASE
			Self-management Skills	self-regulation	INCREASE
			<b>Compound</b>	soft skills compound	INCREASE
2	PERSONAL DEVELOPMENT PROGRAM	CAREER TRAINING - PDP - MENTORSHIP	Career planning	career	INCREASE
3	EXPERIENTIAL LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Efficacy beliefs	self-regulation	INCREASE
			Skillful practice	soft skills compound	INCREASE
			Communication	communication	INCREASE
			Group work	social/interpersonal	INCREASE
			Creativity	flexibility	INCREASE
			Communication	communication	INCREASE
			Group work	social/interpersonal	NO DIFFERENCE
			Creativity	flexibility	INCREASE
			Efficacy beliefs	self-regulation	NO DIFFERENCE
			Skillful practice	soft skills compound	NO DIFFERENCE
4	MENTORING	CAREER TRAINING - PDP - MENTORSHIP	Self-efficacy (mentors)	self-regulation	INCREASE
			Self-esteem (mentors)	self-regulation	NO DIFFERENCE

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			Goal achievement (mentors)	self-regulation	INCREASE
			Employability (mentors)	employability	INCREASE
			Self-efficacy (mentees)	self-regulation	NO DIFFERENCE
			Self-esteem (mentees)	self-regulation	NO DIFFERENCE
			Academic skills (mentees)	soft skills compound	INCREASE
5	INTERNATIONAL TRAVEL + EXPERIENTIAL LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Adaptability	flexibility	NO DIFFERENCE
			Oral communication	communication	NO DIFFERENCE
			Self-awareness	self-regulation	NO DIFFERENCE
			Understand others feeling	social/interpersonal	NO DIFFERENCE
			Creativity	flexibility	INCREASE
			Attention to detail	other personal	NO DIFFERENCE
			Open to new ideas	flexibility	NO DIFFERENCE
			Responsibility	other personal	NO DIFFERENCE
			Presentation	communication	NO DIFFERENCE
			Teamwork	social/interpersonal	NO DIFFERENCE
			Emotion management	emotional	NO DIFFERENCE
			Time management	organizational	NO DIFFERENCE
			Academic performance	career	NO DIFFERENCE
			Academic expectation	career	NO DIFFERENCE
			Planning and organizing	organizational	NO DIFFERENCE
			Independence	self-regulation	NO DIFFERENCE
Career aspiration	career	NO DIFFERENCE			



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			Graduate position	career	NO DIFFERENCE
			Job information	career	NO DIFFERENCE
			Suitable jobs	career	NO DIFFERENCE
			Nonmonetary incentives	career	NO DIFFERENCE
			Numeracy	analytical	NO DIFFERENCE
			Problem-solving	analytical	NO DIFFERENCE
			Relevant experience	career	NO DIFFERENCE
			Self-promotion	self-regulation	NO DIFFERENCE
6	SERVICE LEARNING IN CAPSTONE	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Decision making	analytical	NO DIFFERENCE
			Presentation	communication	INCREASE
			Ability to work in teams	social/interpersonal	NO DIFFERENCE
7	PRACTICAL LABORATORY SERIES	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Interpersonal and communication	communication	INCREASE
			Problem-solving	analytical	INCREASE
			Initiative	other personal	INCREASE
			Working under pressure	emotional	INCREASE
			Organizational skill	organizational	INCREASE
			Teamwork	social/interpersonal	INCREASE
			Ability to learn and adapt	flexibility	INCREASE
			Numeracy	analytical	INCREASE
			<b>Compound</b>	soft skills compound	INCREASE
8	CO-CURRICULAR ACTIVITIES	EXPERIENTIAL LEARNING - TEAM - PROJECT -	Extrinsic goal orientation	self-regulation	INCREASE
			Self-efficacy	self-regulation	INCREASE

		PROBLEM BASED LEARNING	Intrinsic goal orientation	self-regulation	NO DIFFERENCE
			Task value	self-regulation	NO DIFFERENCE
			Control beliefs	self-regulation	NO DIFFERENCE
			Anxiety	emotional	NO DIFFERENCE
			Rehearsal	analytical	NO DIFFERENCE
			Elaboration	analytical	NO DIFFERENCE
			Organization	organizational	NO DIFFERENCE
			Critical thinking	analytical	NO DIFFERENCE
			Meta-cognitive self-regulation	self-regulation	NO DIFFERENCE
			Time and study environment	organizational	NO DIFFERENCE
			Effort regulation	emotional	NO DIFFERENCE
			Peer learning	social/interpersonal	NO DIFFERENCE
			Help seeking	social/interpersonal	NO DIFFERENCE
			Amotivation	self-regulation	NO DIFFERENCE
			External regulation	self-regulation	NO DIFFERENCE
			Introjected regulation	self-regulation	NO DIFFERENCE
			Identified Regulation	self-regulation	NO DIFFERENCE
Intrinsic motivation - Knowledge	self-regulation	NO DIFFERENCE			

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			Intrinsic motivation - Accomplishment	self-regulation	NO DIFFERENCE
			Intrinsic motivation - Stimulation	self-regulation	NO DIFFERENCE
9	WORK PLACEMENT	INTERNSHIP - APPRENTICESHIP - PLACEMENT	Mean 'employability' score	employability	INCREASE
			Salary (first job after graduation)	employability	NO DIFFERENCE
			Salary (at time of survey)	employability	INCREASE
			Problem-solving	analytical	INCREASE
			Written communication	communication	INCREASE
			Spoken communication	communication	NO DIFFERENCE
			Numeracy	analytical	INCREASE
			Basic computer literacy	analytical	INCREASE
			Advanced IT/software skills	analytical	NO DIFFERENCE
			Research skills	analytical	NO DIFFERENCE
			Creativity	flexibility	INCREASE
			Entrepreneurial skills	other personal	NO DIFFERENCE
			Ability to work in teams	social/interpersonal	INCREASE
			Management	other personal	INCREASE
Leadership	other personal	NO DIFFERENCE			
10	INTERCULTURAL COMMUNICATION CRITICAL INCIDENT TASK	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Scenario understanding	social/interpersonal	INCREASE
			Miscommunication understanding	social/interpersonal	INCREASE

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			Awareness communication Western	social/interpersonal	INCREASE
			Awareness communication Eastern	social/interpersonal	INCREASE
			<b>Compound</b>	social/interpersonal	INCREASE
11	TEAM-BASED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Cultural diversity abilities	social/interpersonal	INCREASE
			Soft skills and leadership abilities	soft skills compound	INCREASE
			Planning and implementation abilities	organizational	INCREASE
12	CUNY SERVICE CORPS PROGRAM: EXPERIENTIAL LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Manner	other personal	INCREASE
			Attendance and punctuality	organizational	NO DIFFERENCE
			Dependability	other personal	NO DIFFERENCE
			Time management	organizational	INCREASE
			Accountability	other personal	INCREASE
			Initiative	other personal	INCREASE
			Adaptability	flexibility	INCREASE
			Leadership skills	organizational	INCREASE
			Creative thinking and problem solving	flexibility	INCREASE
			Attitude towards learning	other personal	INCREASE
			Verbal communication	communication	INCREASE

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			Written communication	communication	INCREASE
			Digital communication	communication	INCREASE
			Interactions with coworkers	social/interpersonal	INCREASE
			Interactions with volunteers	social/interpersonal	INCREASE
			Interactions with clientele	social/interpersonal	INCREASE
			Cultural competency	social/interpersonal	INCREASE
			Collaboration	social/interpersonal	INCREASE
			Teamwork	social/interpersonal	INCREASE
13	WORK INTEGRATED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Working effectively with others	social/interpersonal	INCREASE
			Communicating effectively	communication	INCREASE
			Self-awareness	self-regulation	INCREASE
			Thinking critically	analytical	INCREASE
			Analyzing data and using technology	analytical	INCREASE
			Problem Solving	analytical	INCREASE
			Developing initiative and enterprise	other personal	INCREASE
			Self-management	self-regulation	INCREASE
			Social responsibility and accountability	other personal	INCREASE

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			Developing professionalism	soft skills compound	INCREASE
14	BUSINESS SIMULATION	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Self-knowledge	self-regulation	INCREASE
			Ability to obtain and use information	flexibility	INCREASE
			Ability to manage the environment	flexibility	INCREASE
			Ability to communicate effectively	communication	INCREASE
			Ability to listen and share	communication	INCREASE
			Ability to express orally	communication	INCREASE
			Ability to express in written form	communication	INCREASE
			Ability to manage time and activity	organizational	INCREASE
			Ability to manage a project	organizational	INCREASE
			Ability to manage work	organizational	INCREASE
			Ability to act effectively in a team	social/interpersonal	INCREASE
15	CAPSTONE SERVICE LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Ability to assimilate new technology	flexibility	NO DIFFERENCE
			Ability to work in teams	social/interpersonal	NO DIFFERENCE
			Accountability	other personal	NO DIFFERENCE
			Analytical ability	analytical	NO DIFFERENCE

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			Computer problem solving skills	analytical	NO DIFFERENCE
			Creativity and creative thinking	flexibility	NO DIFFERENCE
			Decision making	analytical	NO DIFFERENCE
			Ethical values	other personal	NO DIFFERENCE
			Global awareness	social/interpersonal	NO DIFFERENCE
			Interpersonal skills	social/interpersonal	NO DIFFERENCE
			Oral communication	communication	NO DIFFERENCE
			Persuasive ability	other personal	NO DIFFERENCE
			Presentation	communication	NO DIFFERENCE
			Project management	organizational	NO DIFFERENCE
			Punctuality	organizational	NO DIFFERENCE
			Responsibility	other personal	NO DIFFERENCE
			Time management	organizational	NO DIFFERENCE
			Written communication	communication	NO DIFFERENCE
			Collaborative learning	social/interpersonal	INCREASE
			Technological and organizational awareness	soft skills compound	NO DIFFERENCE
			Timely written communications	soft skills compound	NO DIFFERENCE
			Creative decision making	soft skills compound	NO DIFFERENCE
16	CONSTRUCTIVE	EXPERIENTIAL LEARNING	Develop generic skills	soft skills compound	

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	ALIGNMENT	- TEAM - PROJECT - PROBLEM BASED LEARNING	Critical thinking item 1	analytical	NO DIFFERENCE
			Critical thinking item 2	analytical	INCREASE
			Ability to pursue lifelong learning item 1	other personal	INCREASE
			Ability to pursue lifelong learning item 2	other personal	INCREASE
			Active learning item 1	other personal	INCREASE
			Active learning item 2	other personal	INCREASE
17	LEADERSHIP CERTIFICATION	SPECIFIC INTERVENTION	Problem Solving	analytical	NO DIFFERENCE
			Communication	communication	NO DIFFERENCE
			Teamwork	social/interpersonal	NO DIFFERENCE
			Change and Innovation	soft skills compound	NO DIFFERENCE
			Ability to manage self	self-regulation	NO DIFFERENCE
			Being civic-minded	other personal	NO DIFFERENCE
			<b>Perceived Total Employability Skill Competence</b>	employability	NO DIFFERENCE
			Problem Solving (perceived by others)	analytical	NO DIFFERENCE
			Communication (perceived by others)	communication	NO DIFFERENCE
			Teamwork (perceived by others)	social/interpersonal	NO DIFFERENCE
			Change and Innovation (perceived by others)	soft skills compound	NO DIFFERENCE
			Ability to manage self	self-regulation	NO DIFFERENCE



			(perceived by others)		
			Being civic-minded (perceived by others)	other personal	NO DIFFERENCE
			<b>Perceived Total Employability Skill Competence</b> (perceived by others)	employability	NO DIFFERENCE
18	MIXED MODE INSTRUCTION (PBL)	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Problem Solving	analytical	INCREASE
19	PROBLEM-BASED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Ability to handle complex issues	analytical	NO DIFFERENCE
			The ability to acquire new knowledge	other personal	NO DIFFERENCE
			The ability to cooperate within the field	social/interpersonal	NO DIFFERENCE
			The ability to work across disciplines	flexibility	NO DIFFERENCE
			The ability to work with projects	organizational	INCREASE
			The ability to work in a structured way	organizational	NO DIFFERENCE
			The ability to meet deadlines	organizational	NO DIFFERENCE

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			The ability to work independently	organizational	DECREASE
			Communication and presentation skills	communication	INCREASE
			Project management	organizational	INCREASE
			Entrepreneurship	other personal	NO DIFFERENCE
			The ability to analyze and solve problems	analytical	NO DIFFERENCE
20	COMPETITION BASED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Cope with emergency	flexibility	INCREASE
			Identify and resolve issues in a scientific manner	analytical	INCREASE
			Professional and ethical	other personal	INCREASE
			Explore labor market in area of requirements	career	INCREASE
			Prepare technical report by one's self	self-regulation	INCREASE
			Bilingual verbal salutation	communication	INCREASE
			Express opinion and suggestion freely	communication	INCREASE
			Understand economic, cultural, and social issues	social/interpersonal	INCREASE
			Effectively manage and be a leader	other personal	INCREASE

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			Ability to work in different cultural environments	social/interpersonal	INCREASE
			Confident and work independently	self-regulation	INCREASE
			Learned new skills and kept abreast of developments	self-regulation	INCREASE
21	E-SCAFFOLDING IN HYBRID LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Problem Solving	analytical	INCREASE
22	AUS FAMILY WELL BEING COURSE	SPECIFIC INTERVENTION	Leadership skills	other personal	INCREASE
23	PROBLEM-BASED AND E-LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Language	communication	INCREASE
			Group learning	social/interpersonal	INCREASE
			Conflict resolution	social/interpersonal	INCREASE
			Research skills	analytical	INCREASE
			Miscellaneous	soft skills compound	INCREASE
24	SEX EDUCATION AND LIFE SKILL TRAINING	SPECIFIC INTERVENTION	Self-awareness	self-regulation	INCREASE
			Self-esteem	self-regulation	INCREASE
			Decision making	analytical	INCREASE
			Communication	communication	INCREASE
25	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	Emotional Quotient (EQ)	emotional	INCREASE
26	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	Social function	social/interpersonal	INCREASE
			Emotion regulation	emotional	INCREASE

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27	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	Self-efficacy	self-regulation	INCREASE
28	SIMULATION GAME	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Self-efficacy	self-regulation	NO DIFFERENCE
29	READING-WRITING WORKSHOP	SPECIFIC INTERVENTION	reading	analytical	INCREASE
			writing	communication	INCREASE
			time management	organizational	INCREASE
30	PEER-TO-PEER MENTORING	CAREER TRAINING - PDP - MENTORSHIP	Emotional Resilience	emotional	NO DIFFERENCE
			Flexibility Openness	flexibility	INCREASE
			Personal Autonomy	self-regulation	NO DIFFERENCE
			Perceptual Acuity	social/interpersonal	INCREASE
			Fulfillment	self-regulation	INCREASE
31	EVALSOFT SYSTEM (VR SYSTEM)	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Teamwork	social/interpersonal	INCREASE
32	PROJECT-BASED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Relationship between theory and practice	analytical	DECREASE
			Solving problems	analytical	NO DIFFERENCE
			Synthesis	analytical	NO DIFFERENCE
			Oral communication	communication	INCREASE
			Writing	communication	NO DIFFERENCE
			Teamwork	social/interpersonal	INCREASE

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			Time Management	organizational	INCREASE
			Leadership	other personal	NO DIFFERENCE
			Creativity	flexibility	INCREASE
33	LIFE SKILL TRAINING	SPECIFIC INTERVENTION	Drug abuse preventive behaviors	soft skills compound	INCREASE
34	PEDAGOGICAL CODE REVIEWS	SPECIFIC INTERVENTION	Self-Efficacy - control	self-regulation	MIXED
			Sense of Community - control	social/interpersonal	MIXED
			Peer Learning - control	social/interpersonal	MIXED
35	PERSONAL DEVELOPMENT PROGRAM	CAREER TRAINING - PDP - MENTORSHIP	Confidence	self-regulation	
			Interpersonal skills	social/interpersonal	
			Self-management	self-regulation	
			Learning and adaptability	flexibility	
			concept and analysis	analytical	
			Oral communication	communication	
			Team skills	social/interpersonal	
			Information literacy	analytical	
			Written communication	communication	
			Career and vocational skills	career	
			<b>Personal confidence and skills</b>	<b>soft skills compound</b>	INCREASE
			Confidence	self-regulation	
Career and vocational skills	career				

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			<b>Personal identity</b>	<b>soft skills compound</b>	
36	Yogic Breathing-based Life Skills Workshop	SPECIFIC INTERVENTION	Connectedness - Study1	social/interpersonal	INCREASE
			Gratitude - Study1	other personal	INCREASE
			Connectedness - Study2	social/interpersonal	INCREASE
			Gratitude - Study2	other personal	INCREASE
37	STAR (Articulation Program)	SPECIFIC INTERVENTION	Ability to sharpen	communication	INCREASE
			Ability to deepen	communication	INCREASE
			Ability to transfer	communication	INCREASE
38	Career Training and Mentorship	CAREER TRAINING - PDP - MENTORSHIP	Career planning	career	INCREASE
			Job search intention	career	INCREASE
			Career commitment	career	INCREASE
			Career reconsideration	career	INCREASE
			Career learning self-efficacy	self-regulation	INCREASE
39	SCIENTISTS LIFE SKILL COURSE	SPECIFIC INTERVENTION	Critical thinking	analytical	INCREASE
			Growth mindset	flexibility	INCREASE
			GRIT	emotional	INCREASE
40	ACTIVE LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Presentation	communication	NO DIFFERENCE
			Creativity	flexibility	NO DIFFERENCE
			Communication	communication	NO DIFFERENCE
			Leadership	other personal	NO DIFFERENCE
			Life planning	organizational	NO DIFFERENCE
Adaptability	flexibility	NO DIFFERENCE			

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			Self-sufficiency	self-regulation	NO DIFFERENCE
			Courtesy	other personal	NO DIFFERENCE
			Punctuality	other personal	NO DIFFERENCE
			Kindness	social/interpersonal	NO DIFFERENCE
			Honesty	other personal	NO DIFFERENCE
41	BOARDGAME - SIMULATION	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Communication	communication	INCREASE
			Critical thinking	analytical	INCREASE
			Problem Solving	analytical	INCREASE
			Teamwork	social/interpersonal	INCREASE
42	PROBLEM-BASED LEARNING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Communication	communication	INCREASE
			Time Management	organizational	INCREASE
			Initiative	other personal	INCREASE
			Curiosity	other personal	NO DIFFERENCE
43	COMPETENCE TRAINING	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Emotional competence	emotional	INCREASE
44	SOFT SKILLS TRAINING	SPECIFIC INTERVENTION	Labor force participation (i.e. job search)	employability	NO DIFFERENCE
			Employment	employability	NO DIFFERENCE
			Formal contract	employability	NO DIFFERENCE
			Employed and registered for social security (survey)	employability	NO DIFFERENCE

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			Employed and registered for social security (admin data)	employability	NO DIFFERENCE
			Hours worked (prior week)	employability	NO DIFFERENCE
			Work income (not conditional on working)	employability	NO DIFFERENCE
			Work income (conditional on working)	employability	NO DIFFERENCE
			Optimism	emotional	INCREASE
			Optimism about the future	emotional	INCREASE
45	COMMUNITY SERVICE PROJECT	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	Psychological flexibility	flexibility	MIXED
			Leadership	other personal	MIXED
			Positive mental health	soft skills compound	MIXED
46	COMMUNITY ENGAGEMENT	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	<b>Academic performance</b>	soft skills compound	INCREASE
			Learning	other personal	
			Cognitive processes	analytical	
			Critical Thinking	analytical	
			Persistence & Retention	other personal	
			Achievement & Aspirations	self-regulation	
			Integration	analytical	
			<b>Life Skills</b>	soft skills compound	INCREASE
			Racial Tolerance	social/interpersonal	
			Cultural understanding	social/interpersonal	



			Self-Efficacy	self-regulation	
			Problem Solving	analytical	
			Career clarification	career	
			Leadership	other personal	
			<b>Civic &amp; Social Responsibility</b>	soft skills compound	INCREASE
			Commitment To Community	social/interpersonal	
			Aspiration To Volunteer	other personal	
			Empathy	social/interpersonal	
			Philanthropy	other personal	
			Civic-Minded Professional	other personal	
			<b>Personal Development</b>	soft skills compound	INCREASE
			Moral Development	other personal	
			Self-Concept	self-regulation	
			Motives, attitudes, and values	other personal	

Table 3.

Summary of the number of studies for each intervention category and outcome category

Outcome Category	Intervention Category				Intervention Implementation		TOTAL N OF STUDIES
	SPECIFIC INTERVENTION	CAREER TRAINING - PDP - MENTORSHIP	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	INTERNSHIP - APPRENTICESHIP - PLACEMENT	INTEGRATED	PARALLEL	
EMPLOYABILITY	2	1	0	1	2	2	14
SOFT SKILLS COMPOUND	2	2	11	0	15	0	22
SOCIAL/INTERPERSONAL	4	2	20	1	20	7	51
COMMUNICATION	4	1	15	1	16	5	39
ANALYTICAL	4	2	16	1	18	5	44
EMOTIONAL	4	1	4	0	5	4	11
ORGANIZATIONAL	1	0	11	0	11	1	24
FLEXIBILITY	1	2	11	1	11	4	22

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SELF-REGULATION	4	4	12	0	15	5	48
OTHER PERSONAL	3	0	13	1	13	4	46
CAREER	0	3	4	0	5	2	18
<b>TOTAL N OF STUDIES</b>	13	5	27	1	37	9	170
	46				46		

Table 4.

Summary of the number of measured outcomes for each intervention category and outcome category

Outcome Category	Intervention Category				Intervention Implementation		TOTAL N OF MEASURED OUTCOMES
	SPECIFIC INTERVENTION	CAREER TRAINING - PDP - MENTORSHIP	EXPERIENTIAL LEARNING - TEAM - PROJECT - PROBLEM BASED LEARNING	INTERNSHIP - APPRENTICESHIP -PLACEMENT	INTEGRATED	PARALLEL	
EMPLOYABILITY	10	1	0	3	3	11	14
SOFT SKILLS COMPOUND	3	3	16	0	22	0	22
SOCIAL/INTERPERSONAL	7	3	40	1	41	10	51
COMMUNICATION	7	2	28	2	31	8	39
ANALYTICAL	5	2	32	5	34	10	44
EMOTIONAL	5	1	5	0	6	5	11

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ORGANIZATIONAL	1	0	23	0	22	2	24
FLEXIBILITY	1	2	18	1	16	6	22
SELF-REGULATION	6	12	30	0	38	10	48
OTHER PERSONAL	5	0	38	3	37	9	46
CAREER	0	7	11	0	9	9	18
<b>TOTAL N OF MEASURED OUTCOMES</b>	50	33	241	15	259	80	339
	339				339		

# FOCUS GROUPS

## FOUR CASES: UCY, VUA, UOC, UJA

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### **Aim**

To gain an in-depth understanding of the perspectives and opinions from relevant stakeholders on the importance of soft skills for employability and the implementation of soft skills in HE, four focus groups were run (one by each partner: UCY, VUA, UOC, UJA). The following research questions were investigated from a qualitative perspective:

1. What is the perceived importance of soft skills for employability?
2. Which soft skills are considered as having a priority for employability?
3. How can soft skills development be implemented in the higher education curriculum?

The four focus groups will be presented as four cases, from which we will integrate findings in light of the three research questions.

### **Methods**

#### ***Participants***

For each case, 6 to 8 participants were recruited via purposive sampling, focusing on critical cases with maximal variation within the focus group. This led to a heterogeneous group of stakeholders, as set out by the stakeholders' engagement protocol. Table 10 shows the roles of participants in each of the four cases. Ethics approval was obtained at each university where the focus group took place (UCY, VUA, UOC, UJA).

Table 10.

Roles of focus group participants in the four cases.

UCY	VUA	UOC	UJA
<ul style="list-style-type: none"> <li>• 2 employers</li> <li>• 1 public employment counsellor</li> <li>• 1 public policymaker</li> <li>• 1 university quality assurance officer</li> <li>• 1 university careers officer</li> <li>• 1 university student</li> </ul>	<ul style="list-style-type: none"> <li>• 2 HR professionals</li> <li>• 1 program director / lecturer</li> <li>• 1 junior lecturer</li> <li>• 1 recent graduate / employee / student</li> <li>• 1 university student</li> </ul>	<ul style="list-style-type: none"> <li>• 3 liaison officers                             <ul style="list-style-type: none"> <li>• 1 entrepreneurship consultant</li> </ul> </li> <li>• 1 university professor</li> <li>• 1 university student</li> <li>• 1 person with multiple roles</li> </ul>	<ul style="list-style-type: none"> <li>• 4 graduated jobseekers</li> <li>• 3 university students</li> <li>• 1 university professor</li> </ul>

**Data collection**

Informed consent was obtained from all participants prior to the focus group. Participants also completed a brief questionnaire to describe their stake in the role of soft skills in higher education. The four focus groups were formalized by a focus group protocol<sup>4</sup>. The interview guide, which systematically addressed the three main research questions can be found in Appendix 2. The duration of the focus groups was between 90 and 120 minutes. Focus groups took place online, in one session, via ZOOM, and were video and/or audio recorded.

**Analysis**

Via inductive thematic analysis, the most important themes emerging from the focus groups were identified<sup>5</sup>. In short, each of the four focus groups was verbatim transcribed in the original language, repeatedly

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<sup>4</sup> The focus group protocol can be found [here](#).

<sup>5</sup> A detailed focus group analysis protocol is available [here](#).

read, and coded in English with the three specific research questions in mind. Next, patterns of codes were sought, and overarching themes were identified.

## ***Results***

Below the integrated findings of the four focus groups for each research question are summarized, after briefly addressing the language stakeholders use when discussing soft skills. When results only applied to one specific case, this is explicitly mentioned. Otherwise, results can be considered as consistent between cases. Results of the inductive thematic analyses specific to each case can be found in Appendices 3 to 6.

### ***The language of soft skills***

At first sight, it seems that a variety of different stakeholders (e.g., students, lecturers, career officers, HR professionals, employment counsellors, policymakers) talk about soft skills and their role for employability with ease and confidence. However, soon appears that the language of soft skills becomes rather vague and complex. Definitions of soft skills are difficult to articulate and vague (UCY and UOC). Soft skills are interpreted differently by different people. Some soft skills are debated to be soft skills (rather than characteristics, traits, or dispositions), hard skills or something in between. The definition of soft skills categories appears ambiguous, and soft skills and soft skills categories are described as “high dimensional” (VUA), illustrating that soft skills are strongly interrelated in many different ways (e.g., negotiation skills require strong interpersonal skills, but also require to reflect and influence; forming a vision requires both strong communication skills and analytical skills).

### ***What is the perceived importance of soft skills for employability?***

Overall, soft skills are convincingly and consistently perceived as “enormously important” (HR professional 2, VUA; University Careers Officer, UCY) for employability; soft skills are the “**cornerstone**” of employability (Policy Maker 1, UCY).



In describing why soft skills are so important, the following reasons emerged.

First, soft skills are valuable to do well in life in general and are critical for employability but lacking or deficient in graduates. This “skills gap” is why the development of soft skills is so essential.

Second, soft skills are essential for employability because they make people stand out. While soft skills are complementary to hard skills, hard skills seem to be well-developed in everyone, but soft skills are unique as they “set job candidates and employees apart” (University Quality Assurance Officer, UCY) when applying for jobs, starting their job, and progressing in their career paths. This is particularly the case because at the time of graduation, graduates do not have work experience, so soft skills are an asset, a “plus point” (Job seeker 2, UJA).

Third, soft skills are essential to adapt to the workplace, e.g., to fit in when joining a new workplace, to adjust to constantly changing dynamics in organizations and its broader social context, to adjust to evolving demands and pressures, and to develop social relations with colleagues.

In line with that, expectations of employers of soft skills in graduates are high compared to hard skills (VUA). Employers expect the “sheep with five feet” (HR professional 2, VUA). Yet, it is acknowledged that not all soft skills can be feasibly expected in graduates. Some soft skills are critical for starters, but others need more time to develop and grow. In addition, it is recognized that not everyone has to be good at every soft skill, as long as in a project team you can merge skills to complete a project.

While some soft skills are described to be important for everyone at any time in any context, the importance of most skills is suggested to be **context-dependent**. How important a soft skill is, (1) changes throughout time (e.g., finding a job, starting a job, promoting to senior member, setting your own business), (2) depends on the job, employment sector and career path (e.g., interpersonal skills for marketing & sales jobs and jobs relying on teamwork vs. hard skills for predominantly technical jobs such as programmers, process operators), (3) depends on the workplace (e.g., the social and

intercultural work environment), and (4) depends on the societal context (e.g. specific adjustments required by COVID-19, economic crisis).

***Which soft skills are a priority for employability?***

Consistent with the context-dependency of the importance of soft skills, also priority of soft skills for employability is predominantly context-dependent (e.g., dependent on career path and stage in career path). **“One perfect soft skills profile for employability does not exist”** (Graduate, VUA). The common feeling is that single soft skills cannot be prioritized. Priority should be given to a **dynamic soft skill set**, which allows one to flexibly adjust to continuously changing personal and contextual factors (e.g., specific job roles, specific time periods in the year that may be more or less demanding, specific job responsibilities depending on where a person is in their career path). This is consistent with students wanting to “prioritize their own skills” (Job seeker 2, UJA).

Which soft skills should then be part of this dynamic skills profile? **Some soft skills are universally important**, as they are helpful for anyone, in any position, at any time. Examples mentioned in each of the four cases are presented in Table 11.

Table 11.

Soft skills considered universally important in each of the four cases.

UCY	VUA	UOC	UJA
flexibility/adaptability	adaptability	flexibility/adaptability	
interpersonal skills	building relationships collaboration	teamwork	teamwork
communication		communication	communication
stress management	resilience		stress management
self-awareness		self-understanding	

		self-management	
initiative-taking	listening	conflict	
critical thinking	discipline	management/resolution	
	ability to learn		

Interestingly, comparing the above-mentioned soft skills being universally important between cases, one set of skills, namely interpersonal skills/building relationships/collaboration/teamwork, are mentioned as essential in all four focus groups. Adaptability/flexibility, communication and stress management/resilience were listed as important in three of four focus groups.

However, it also seems that differences appear, mostly between the VUA case and the three other cases (UCY, UOC, and UJA). While communication and self-awareness/self-understanding/self-management are considered universally important in the UCY, UOC, and/or UJA cases, these are not mentioned in this context in the VUA discussion. In the VUA focus group, these skills were discussed in the following context.

First, communication (including presenting, writing, pitching) and teamwork are considered as essential soft skills, but not a priority for innovative soft skills development in HE, as they are currently extensively and continuously worked on in HE, and, based on experiences of HR professionals and employers, are well-developed in HE students already.

Second, personal leadership (encompassing self-awareness/self-understanding/self-management) is considered an important soft skill, but only important later in the career track (together with creativity and out-of-the-box thinking), and thus not a priority for skills development in HE.

Third, some soft skills, such as communication skills and self-awareness, are defined as a priority for students and graduates, because they are essential to finding a job; e.g., networking, resume writing, and promoting yourself.

***How can soft skills development be implemented in the higher education curriculum?***

Overall, the emerging theme is that skills development in HE requires a “**holistic**” (Employer 1, University Quality Assurance Officer, UCY) approach, ensuring continuity in time and connectedness between different stakeholders.

First, soft skills development needs **continuity**. Soft skills development needs to expand beyond HE, and transcend set boundaries in time of primary, secondary and higher education, graduation, and employment.

Soft skills development should start long before students enter HE, at a young age. Also, primary and secondary education, and family should contribute to soft skills development.

During HE, the essence is to “plant a seed” in students (HR professional 2, VUA). Students should become aware and understand which soft skills are essential in their later careers. Soft skills development should be initiated and reflected upon to stimulate future growth. Soft skills development is preferably embedded in the HE curriculum. Although stand-alone soft skills training was proposed as well, it was also emphasized that “isolated soft skills training has only little return of investment” (HR professionals, VUA). Training of soft skills needs to be integrated into continuous loops of training, application, and reflection, extending beyond HE.

Soft skills development does not stop when graduating, and especially specific soft skills (e.g., personal leadership) should not be expected to be fully developed and crystallized at the end of HE, but rather should smoothly carry forward from HE to employment. To achieve this, the roles of HE and employment in skills development need to be interweaved more. In line with this, increased attention for and reflection on soft skills development (especially of soft skills required to apply for jobs) needs to be implemented close to graduation and thus the transition from student to starter. Students grow a lot throughout their education and are “different persons when they graduate than during the first year(s) of HE” (Graduate, VUA).

Second, soft skills development needs **connectedness**, a dynamic interaction between different stakeholders, including the individual student, HE, and other stakeholders, such as employers.

From the **individual student**, willingness, motivation to learn, discipline, and a positive work attitude to continue self-development is expected, which is emphasized to be partly the student's own responsibility.

The role of **HE** consists of providing opportunities for students to develop the soft skills profile they require for their career path. Specific teaching methods, such as experiential learning (UCY, UOC, and UJA), student-led and project-based learning (UCY), and group work (UOC), are suggested to aid soft skills development. Academics are also advised to use their network and partnerships with other stakeholders for placements, internships, summer employment, student exchange (UCY). Alternatively, personal coaching is suggested to guide students in their soft skills track (VUA). ECTs are considered an appropriate incentive to train the most basic skills.

Also, **employers** have an important responsibility in soft skills development in HE. Although engagement of employers in HE would be very valuable, this appears to be difficult (VUA). It is suggested that engaging professionals in HE would require either strong passion of the professional for education, some sort of return of investment for the professional, or common priorities.

Aside from employers, also the "ministry of education" and "trade unions" (Employer 2, UCY) carry a responsibility in reforming the education system to allow more time for extracurricular activities (especially in primary and secondary school), to establish a culture shift from an emphasis on grades to emphasis on learning and self-development (UCY).

Apart from the few suggestions to enhance soft skills development in HE, no or vague responses are given to the question *how* to implement soft skills development in HE.

Worth noting is that also no good suggestions for assessment of soft skills came about. Moreover, it is discussed that assessing and grading soft skills even misses the mark (VUA).

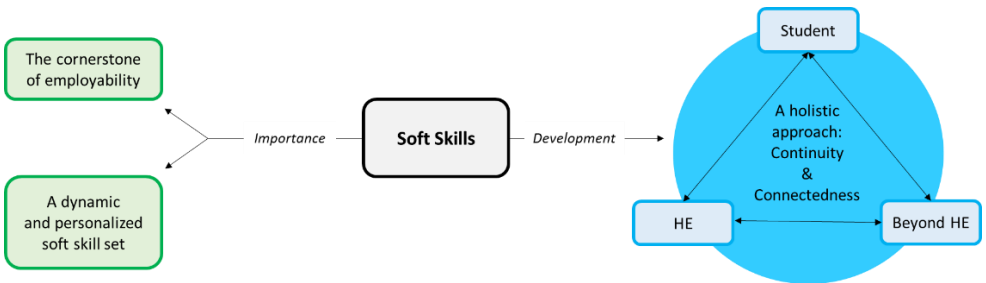
## Conclusions

Integrating the four cases, the following overall conclusions can be formulated, which are also represented in the summary map in Figure 2.

1. Soft skills are the cornerstone of employability, and they are considered crucial for all aspects of employability.
2. The level of importance of soft skills, and which skills are more important, is dependent on contextual factors: time, job, job sector, workplace, societal context.
3. One universal soft skills profile for employability does not exist. What is needed, is a personalized, dynamic skill set that flexibly varies with these changing contextual factors.  
[Yet, some soft skills are universally important, such as interpersonal skills, communication, flexibility, and stress management.]
4. The development of soft skills requires a holistic approach that extends beyond HE. Soft skills development should involve (1) connectedness and dynamic interactions between students, HE, and stakeholders beyond HE, including employers, (2) continuity, starting before HE and persisting fluidly during and after HE, with reflection being the key to personal growth.

Figure 2.

Summary map of the focus group findings on soft skills development in HE



# SURVEY

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## **Aim**

Complementary to the qualitative evidence from the focus groups (see focus groups), a survey was completed to investigate the importance of soft skills and their development in HE using a quantitative approach. This allowed us to assess a wide range of skills commonly studied in the literature (see systematic review) in a broad representative sample of stakeholders: students, HE professionals, and other professionals.

The goal of this survey was to gain insight into which soft skills (1) are most important to do well in life in general, and for employability specifically, (2) can be and should be taught in HE, and (3) are present in current graduates.

## **Methods**

### *Participants*

Participants were recruited in two ways; (1) through the partners' network by personal invitation by the partner, and (2) through the crowdsourcing platform Prolific (Prolific.co).

Ethics approval for the former was obtained at the local university (UCY and UOC). Ethics approval for the latter was obtained at the VUA.

Participants recruited via crowdsourcing were pre-screened using the following criteria in Prolific. HE students were pre-screened as students currently in the third year of their undergraduate study, from a pool of about 2800 potential participants. HE staff were pre-screened as persons indicating that College University and Adult Education is the industry they primarily work in, regardless of their actual position. This pool consisted of about 3300 potential participants. Professionals involved with recruitment and selection of employees were pre-screened as persons indicating they have experience in making hiring decisions, for example by being

responsible for hiring job candidates. This pool consisted of about 11000 potential participants.

In total, 223 students, 119 HE professionals, and 146 other professionals completed the survey.

### *Materials*

The survey (in Appendix 7) consisted of demographic information, five closed questions, and four open questions.

Closed questions aimed to study (1) the perceived importance of soft skills to do well in life in general, (2) the perceived importance of soft skills for employability at a graduate level, (3) the extent to which soft skills can be learned in HE, (4) the extent to which soft skills should be taught in HE, and (5) the presence of soft skills in current recent graduates. Each of the five questions was assessed on a 5-point Likert scale, for a standard set of 16 soft skills: communication, teamwork, problem-solving, critical thinking, decision making, stress management, time management, planning, leadership, flexibility, innovative thinking, interdisciplinary thinking, self-reflection, assertiveness, self-efficacy, and intercultural awareness.

Open questions asked about (1) which skills other than the 16 standard skills were considered important for employability at a graduate level, and (2) a ranking of the top 3 skills required to secure a job at a graduate level, maintain a job at a graduate level, and to do well in life in general.

### **Analyses**

One-sample t-tests were performed to test whether ratings significantly differed from the midpoint of the scale (3; moderately important - neutral) for each group, i.e.

- (1) whether skills were considered significantly more/less important than moderately important for closed questions 1 and 2,
- (2) whether there was significant agreement/disagreement with regards to closed questions 3 to 5.



A one-way ANOVA was performed to test whether significant differences occurred in ratings of importance and (dis)agreement between the three groups: students, HE professionals, and other professionals.

For all analyses, the significance threshold was set at  $\alpha=0.001$  to account for the large number of tests performed.

## Results

The open questions revealed that soft skills which were not included in the list of 16, yet considered important for employability were empathy, listening and work ethic and integrity.

The results of the closed questions are described below.

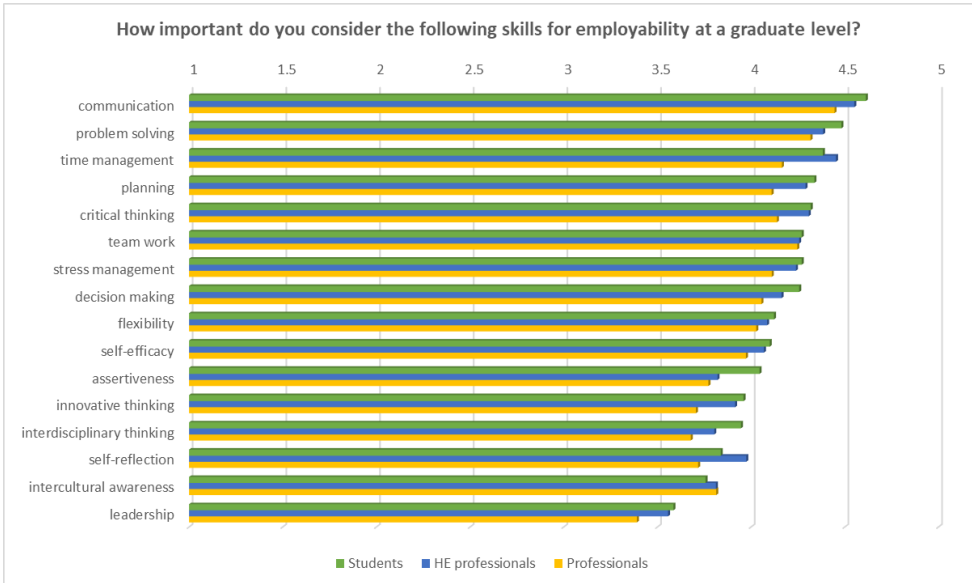
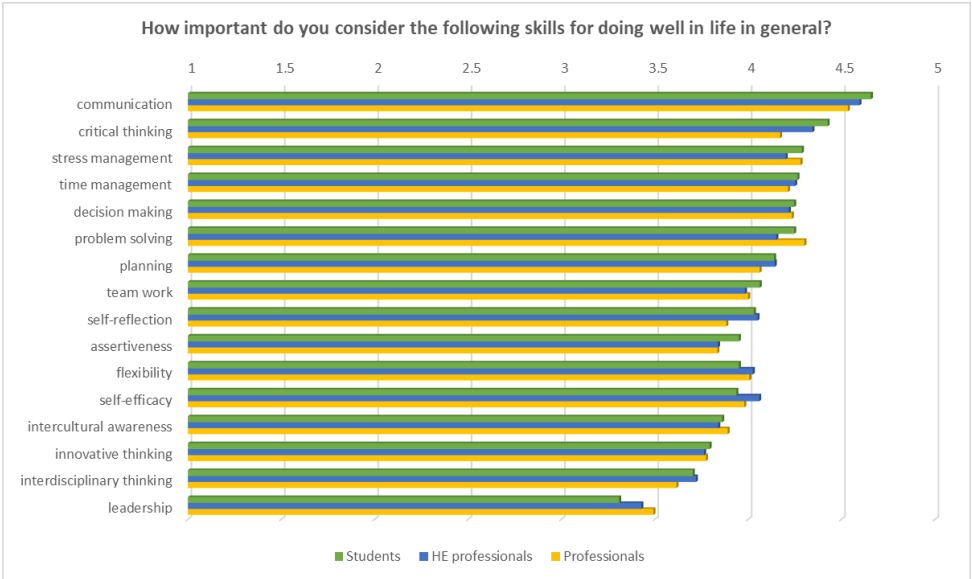
### *Which softs skills are important for doing well in life in general?*

The top 6 skills considered to be important to do well in life general consisted of communication, critical thinking, problem-solving, decision making, time management, and stress management. This top 6 applied to all three groups (students, HE professionals, and other professionals). The most important skill was communication, rated higher than 4.5 out of 5 in all groups. However, all soft skills were rated as important, as the least important skill, leadership, was still rated as high as 3.3, 3.4, and 3.5 out of 5 by students, HE professionals, and other professionals, respectively. All 16 skills were rated as significantly more important for doing well in life in general than moderately important (all  $p<0.001$ ).

### *Which softs skills are important for employability at a graduate level?*

The top 6 skills considered to be important for employability at a graduate level in all three groups included communication, critical thinking, problem-solving, time management, teamwork, and planning. It thus seems that teamwork and planning are considered

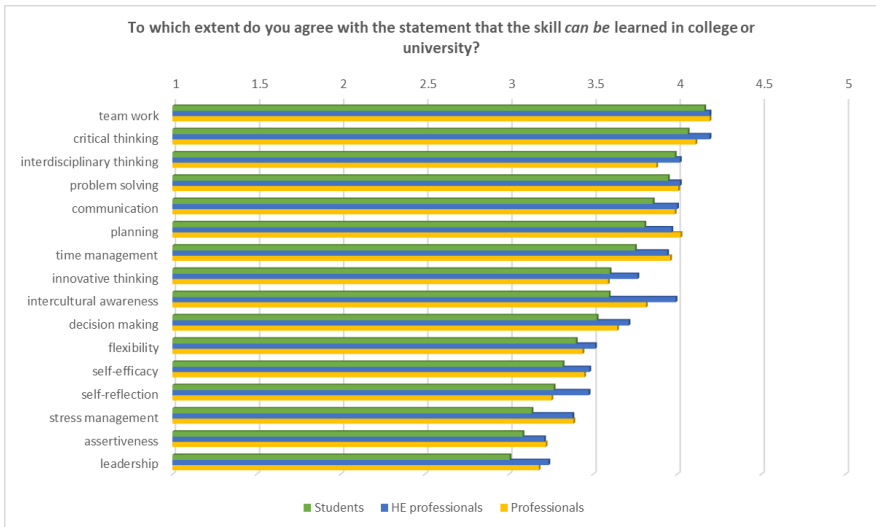
important for employability specifically. Again, leadership was considered least important, yet still scoring 3.4 out of 5 or higher in all three groups. All skills were rated as significantly more important for employability at a graduate-level than moderately important (all  $p < 0.001$ ).



*Can soft skills be learned in HE?*

Teamwork, critical thinking, interdisciplinary thinking, problem-solving, and communication were considered skills that can be learned in HE in all three groups, scoring close to 4 out of 5 or higher. Self-reflection, stress management, assertiveness, and leadership were at the bottom of the ranking, yet still scoring higher than 3 out of 5 in all groups.

However, (dis)agreement ratings showed that assertiveness and leadership were not significantly different from neutral for all groups ( $p \geq 0.001$ ). Students and HE professionals also rated stress management as not significantly different from neutral ( $p \geq 0.001$ ) and students also rated self-reflection not significantly different from neutral ( $p \geq 0.001$ ).



*Should soft skills be taught in HE?*

The soft skills that should be taught in HE showed strong similarities with those that can be taught. The top 5 included critical thinking, problem-solving, communication, teamwork, and interdisciplinary thinking. Similarly, self-efficacy, stress management, assertiveness, and leadership were at the bottom of the ranking, yet still scoring

close to 4 out of 5. Again, ratings of skills showed high consistency between groups. Ratings for all skills showed significant agreement they should be taught in HE (all  $p < 0.001$ ).

### *Do graduates possess soft skills?*

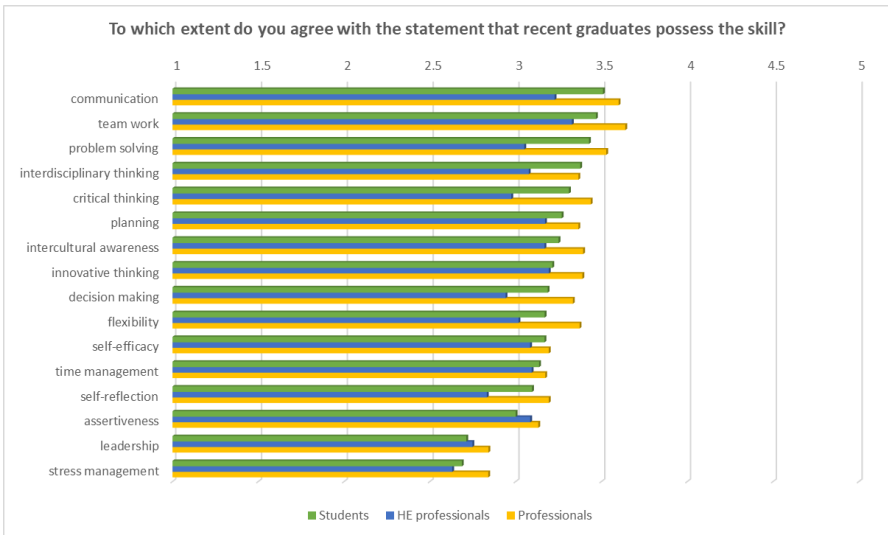
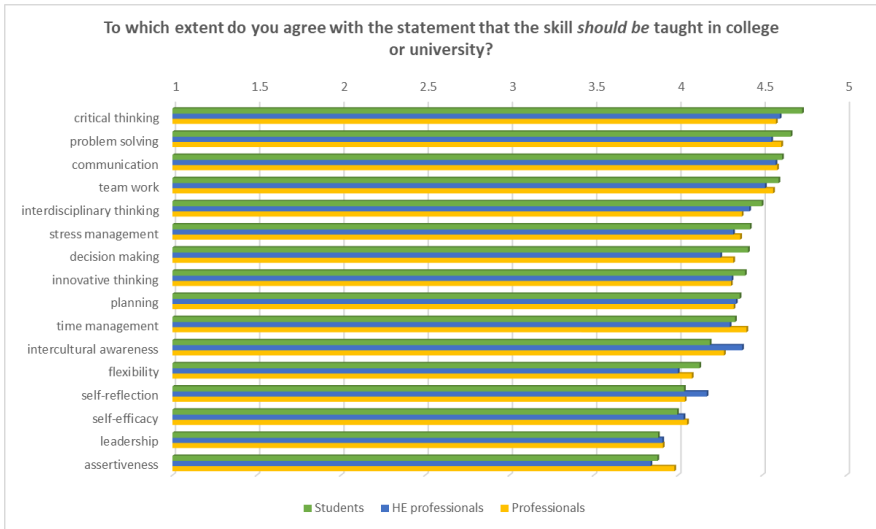
All three groups indicated that graduates possess communication and teamwork skills.

While students and other professionals also indicated problem-solving and critical thinking to be well developed, professionals in HE found innovative thinking and planning to be well developed. For most skills, professionals in HE considered the graduates' skills to be less developed than students and other professionals. For problem-solving and critical thinking, ratings of HE professionals were significantly lower than those of other professionals ( $p < 0.001$ ). The skill considered to be least developed in all three groups was stress management.

Students significantly agreed that graduates possess communication, teamwork, problem-solving, critical thinking, planning, interdisciplinary thinking, and intercultural awareness skills ( $p < 0.001$ ). They significantly disagreed that graduates possess stress management and leadership skills ( $p < 0.001$ ). Other skills did not significantly differ from neutral (all  $p \geq 0.001$ ): decision making, time management, flexibility, innovative thinking, self-reflection, assertiveness, and self-efficacy.

HE professionals only significantly agreed with graduates possessing teamwork skills ( $p < 0.001$ ), and significant disagreement was rated for graduates possessing stress management skills ( $p < 0.001$ ). All other skills ratings did not significantly differ from neutral (all  $p \geq 0.001$ ).

Other professionals significantly agreed that graduates possess soft skills, with exception of stress management, time management, leadership, self-reflection, assertiveness, and self-efficacy, which were all rated not significantly different from neutral (all  $p \geq 0.001$ ).



## CONCLUSION

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In summarizing the above findings, the similarities between students, HE professionals, and other professionals are striking. With exception to the degree to which graduates possess soft skills, there was a very large agreement in terms of which soft skills are essential, and whether they can and should be taught in HE.

All 16 skills were considered to be more than moderately important for doing well in life in general, and for employability at a graduate level specifically. Communication, critical thinking, problem-solving, decision making, time management, and stress management were considered the most important skills for doing well in life general, while decision making and stress management were replaced by teamwork and planning when considering skills important for employability at a graduate level.

While all groups agree that all 16 skills should be taught in HE, doubts exist whether they all *can* be learned in HE. Specifically, all three groups did not agree that assertiveness and leadership can be learned in HE. Moreover, students and HE professionals did not agree that stress management can be learned, and students furthermore did not agree that self-reflection can be learned in HE.

HE professionals are most sceptic about graduates possessing soft skills. They only significantly agreed to graduates possessing teamwork skills. They significantly disagreed with graduates possessing stress management skills, which was consistent with the opinion of students. Students moreover significantly disagreed that graduates possess leadership skills.

These findings once again highlight the gap between the importance of softs skills and graduates possessing soft skills. However, this gap is here not only expressed by professionals but even more so by students and HE professionals. Findings also indicate that a broad range of soft skills are important for employability, and should be taught in HE, while some doubts exist they all can be learned in HE.

# INTEGRATED FINDINGS

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In response to the main research questions, findings of the systematic review, focus groups and survey will be integrated to better understand which soft skills should be trained in HE, and how.

## **The skills gap and the role of HE in this: Whether and which soft skills should be taught in HE?**

The survey and the focus groups confirmed that, indeed, a major skills gap, as often described in the literature, exists. While soft skills are considered essential for employability and flourishing in life in general, graduates possess few soft skills. While they do seem to possess the most important skills (i.e. communication and teamwork, as apparent from the survey and focus groups), they also lack in other important skills (e.g., stress management, self-regulation). The overall opinion seems to be that soft skills should be part of the HE curriculum (as evidenced by the focus groups and survey), allowing the development of soft skills throughout the lives of young adults, building on the skills gained before HE, and setting the course for further skills development in their careers.

## **Which soft skills are considered most important for graduates?**

The focus groups revealed that one model or ultimate profile with a fixed set of soft skills for employability is non-existent and impossible to create. This seems to be confirmed in the survey, in which all 16 pre-set skills were considered to be at least very important, both for thriving in life and for employability specifically, and even more skills beyond the 16 were listed as essential for employability at a graduate level.

However, some skills were defined as universally important in the focus groups, which matched the skills considered as the top important skills in the survey. These skills were communication and interpersonal skills, including teamwork. While these skills were listed as most important, they also seem to be the skills that graduates possess most. This suggests that training of teamwork and communication is already well developed in HE. This was confirmed

by the focus groups (VUA), as well as the systematic review that showed that communication and social skills are studied extensively, and can be improved, mostly by interventions focusing on experiential, team-, project- or problem-based learning. While communication and interpersonal skills are thus essential skills to develop, they may not be a priority for new, innovative soft skills interventions.

Stress management and resilience, on the other hand, were listed as very important soft skills in the focus group and survey (in the latter especially for thriving in life), yet both students and HE professionals indicate these to be poorly developed in graduates. The systematic review also indicates that stress management, and emotion regulation skills more broadly, are very scarcely studied as soft skills. This raises concern, as HE is acknowledged to be a very stressful period in the lives of young adults, and HE students overall report high-stress levels. Therefore, stress management training may be a priority for new, innovative soft skills interventions.

Interestingly, flexibility and adaptability were mentioned as very important skills in the focus groups, and flexibility was also considered to be a very important skill for employability in the survey. Moreover, the importance of flexibility in the focus groups was highlighted in light of the need for a dynamic skills set, requiring constant adjustment based on a variety of situational factors, such as time in one's career, the specific job, job sector, and workplace one is working in, and the broader societal context. So, it seems that flexibility and adaptability should be a priority in soft skills development, as they are the foundation of the necessary dynamics of soft skills.

Remarkably, empathy, work ethic, and listening were listed as important skills in the survey, of which the latter two were also confirmed to be important in the focus groups (VUA). Interestingly, these skills have not been frequently studied as soft skills as evidenced by the systematic review findings.

Leadership was considered the least important skill in the set of 16 in the survey, and the focus groups confirmed that leadership may not be a priority for HE students, as it is very specific to particular jobs and requires more time to grow, which can occur during one's career.



## **Which soft skills can be trained by soft skills interventions in HE?**

The survey revealed that communication, team work, critical thinking, interdisciplinary thinking, and problem solving are considered skills that can be learned in HE. The systematic review shows that indeed improvements in communication and social skills in response to softs skills interventions in HE are common, particularly by means of interventions implementing experiential, team-, project- or problem-based learning. However, analytical skills don't predominantly show improvement in response to soft skills interventions as indicated by the systematic review, so new approaches may be required.

Interestingly, stress management was considered a skill that is not convincingly trainable in HE (by students and HE professionals). Yet, while few soft skills interventions assess emotion regulation skills, the ones that did (being primarily specific interventions), predominantly found improvements in emotion regulation. It thus seems that soft skills interventions targeting emotion regulation do have the potential to enhance emotion regulation, and stress management more specifically.

Also, self-reflection was indicated in the survey as a skill that may not be likely trainable in HE. This is consistent with the finding that soft skills interventions (as currently studied in the systematic review) show predominantly no improvements in self-regulation. This may suggest that also for the development of self-regulation and self-reflection more innovative interventions are necessary. This may prove challenging, though, as the focus groups illustrated that no concrete answers came up to the question *how* to do this.

Finally, also leadership was indicated as a skill difficult to develop in HE, as shown by the survey. This is in line with the focus group findings, showing that leadership requires more time to grow and can be better learned during the career track.

## **How should soft skills be trained in HE?**

While the systematic review shed some light on the effectivity of soft skills interventions in HE, also the focus groups highlighted specific conditions for effective soft skills development in HE. Both

connectedness and continuity were considered essential elements in soft skills development. Connectedness implied that close, dynamic interactions are required between students, HE, and stakeholders beyond HE. Continuity referred to fact that soft skills development is a continuous process that needs to flow uninterrupted in time, starting before HE, continuing during HE, and further evolving during one's career track, and needs continuous reflection throughout.

One example of soft skills interventions that work towards connectedness and continuity is career training, personal development programs, and mentorship, which involve close collaboration with employers and provide future career perspectives. In the focus groups, these interventions were considered very promising, especially when personal coaching was performed by someone in the work field. This was confirmed by the systematic review which showed that, with exception of self-regulation and emotion regulation, career training, personal development programs, and mentorship did well in improving soft skills, especially career skills.

Also, experiential learning is a good example of a soft skills intervention that implements connectedness. As part of community service learning, work-integrated learning, work simulations, or project-based learning, employers and communities are actively involved in learning activities. Experiential learning was therefore suggested to be a potentially good way to enhance soft skills in the focus groups (UCY and UOC). Yet, while the systematic review showed that frequently soft skills are rated higher after experiential learning than before, overall only few group differences were found. One explanation for that could be that experiential learning lacks continuity. As indicated by the focus groups, continuous reflection on progress and growth is essential. As soft skills outcomes in the systematic review generally involved self-perceived (changes in) soft skills, it may well be that students are not aware of the skills they are acquiring (especially when comparing groups following an intervention) because of a lack of reflection on learning. Therefore, integrating experiential learning with self-reflection on the learning process and progress made may be interesting to explore in the future.

Similarly, the systematic review revealed that specific soft skills interventions did show some improvement comparing perceived soft

skills before and after the intervention. Yet between-group comparisons revealed mostly no differences. This aligns with the focus group conclusion, as specific interventions lack both continuity and connectedness. In the focus groups (VUA), the lack of effectivity of isolated interventions was emphasized by HR professionals; if soft skills interventions are not integrated into a continuous circle of training, application, and reflection, they have little promise.

In sum, although strong agreements exist that soft skills are essential throughout life and one's study and career track, the conceptualization and development of soft skills in HE seems to be a complex and challenging process. More systemic and innovative interventions are necessary that aim to develop a broad range of soft skills, including the less studied yet important soft skills, across HE programs and students, and more research is required to evaluate the effectivity of these interventions in (randomized) controlled study designs.

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---

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Georgia Karathanasi	UOC	focus group analysis

# APPENDICES

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Appendix 1: [Systematic review soft skills classification](#)

Appendix 2: [Focus group interview guide](#)

Appendix 3: [Focus group findings UCY](#)

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## **Appendix 1: Systematic review soft skills classification**

- General - compound
  - Soft skills
  - Life skills
  - Employability skills
  - Social competency skills
  - Key competencies
  - Key skills
  - Transversal skills
  - Metacognitive skills
  - 21<sup>st</sup> century skills
  
- Social
  - Communication
    - Oral communication
    - Written communication
    - Presentation
    - Listening
  - Interpersonal
  - Team work
  - Empathy
  - Cooperation
  - Persuasion
  - Negotiation
  - Influencing
  - Advising
  - Diplomacy
  - Assertiveness
  - Conflict management
  - Intercultural awareness and understanding
  - Global awareness
  
- Analytical
  - Computational thinking
  - Systems thinking
  - Synthesis
  - Problem solving
  - Decision making

- Critical thinking
- Numerical
- Numeracy
- Literacy
- Reading
- Goal setting (for tasks)
- Information processing
  
- Emotional
  - Stress tolerance
  - Stress management
  - Stress regulation
  - Emotion regulation
  - Coping
  - Resilience
  - GRIT
  - Optimism
  
- Organizational
  - Time management
  - Project management
  - Deadline management
  - Working in a timely manner
  - Planning
  - Multi-tasking
  
- Flexibility
  - Openness
  - Creative thinking
  - Creativity
  - Innovative thinking
  - Multi/transdisciplinary thinking
  - Adaptive thinking
  - Adaptability
  - Versatility
  - Agility
  
- Self-regulation
  - Self-reflection
  - Self-awareness



- Self-management
- Self-evaluation
- Self-confidence
- Self-knowledge
- Goal orientation (for self)
- Motivation
- Autonomy
  
- Other personal
  - Motivation
  - Responsibility
  - Accountability
  - Dependability
  - Conscientiousness
  - Manner
  - Ethics
  - Integrity
  - Initiating
  - Initiative taking
  - Learning
  - Attention to detail
  - Leadership
  - Management
  - Entrepreneurship
  - Work independently
  
- Career skills
  - Career management
  - Career planning
  - Career expectations/aspirations
  - Career commitment
  - Career reconsideration
  - Job search intentions

## **Appendix 2: Focus group interview guide**

### **Engagement questions:**

If you think of soft skills, which come to mind?

How would you define soft skills?

What does the term soft skills mean to you?

### **Exploration questions:**

Questions about perceived importance and awareness:

How important are soft skills for employability?

- In what way are soft skills important for employability? What makes soft skills important for employability?
- Do employees actively use soft skills in their job? Can you give an example of how or when they use them?
- Are soft skills important enough to integrate in the education of students?

Questions about priorities of soft skills:

- Which soft skills are most important for employability? And why? What makes these the most important ones?
- Which soft skills are well implemented in HE already? How are they trained in students? What are the reasons that these soft skills are part of HE? Why do you think these are implemented, while others are not?
- Which soft skills are the least developed when students graduate? What is the reason for this? Why are these underdeveloped?
- Which soft skills would you like to see embedded in HE? And why?

Questions about implementation expectations & conditions:

- Should soft skills be assessed, and if so, how and by whom?  
How can soft skills be measured? In which way can we assess that an individual is good at a specific skill, or masters the skill?
- How should soft skills training be embedded in HE for it to be effective?
  - Which teaching methods can be used to foster soft skills?
  - Should soft skills training be embedded in existing courses and programs or be run in parallel to existing courses and programs?
  - When should soft skills be taught in the curriculum?
  - How much time should be invested in soft skills development?
  - Should soft skills training be rewarded by ECTS?
  - Should employers contribute to the implementation of soft skills in HE, and if so, in what way?

**Exit questions:**

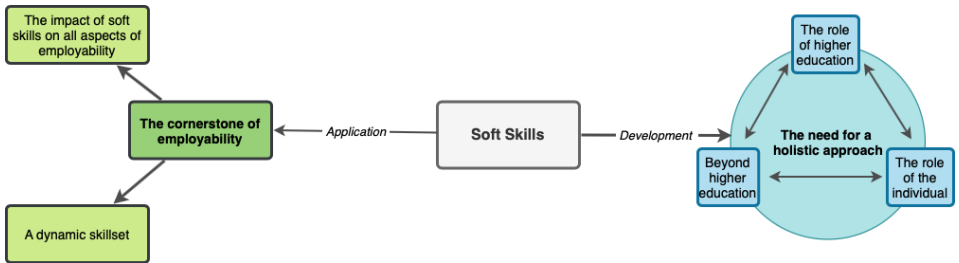
- Which other organizations and persons with a stake in soft skills development in higher education do you think would want to contribute to the type of discussion we had today?
- Is there anything further you would like to discuss that we did not ask you regarding soft skills in HE and their role in employability?

## Appendix 3: Focus group findings UCY

By Maria Orphanidou

Thematic analysis led to the identification of two main themes; namely, *The cornerstone of employability* and *The need for a holistic approach*, which are depicted in Figure 3. The former theme relates to the application of soft skills whereas the latter concerns their development. *The cornerstone of employability* was sustained by two sub-themes, which captured participants understandings relating to the importance of soft skills in different aspects of employability, as well as the significance of possessing a skill set comprised of various soft skills that dynamically adapts to the changing requirements of different contexts. *The need for a holistic approach* was sustained by three sub-themes that illuminated ways in which soft skills can be developed within and outside higher education via adopting a holistic approach.

Figure 3.  
Thematic map.



### The cornerstone of employability

Participants considered soft skills as “highly important” (University Careers Officer 1) and critical in helping individuals excel in several domains of their lives. These domains included family, personal and social life, but most importantly, employability. In fact, soft skills were labelled as the “cornerstone” (Policy Maker 1) of employability and participants suggested that possessing diverse skills (i.e., skill set) can prove beneficial. Further, they explained the importance of specific skills varies depending on the context (e.g., job position, area

of employment, etc.). Hence, when it comes to their prioritizing, participants supported that emphasis should be on a dynamic skill set, which can adapt to different contexts and not particular skills. Findings relating to the impact of these skills on the employability are expanded in the sub-theme *From finding a job to becoming self-employed* whereas participants' views about prioritized skills and how the context can affect this process are discussed under the sub-theme *A dynamic skill set*.

What is also interesting to note is that participants defined soft skills vaguely. In cases where they talked about specific skills, they did not offer any definitions at all. While on the one hand, these findings could point to a difficulty of putting such abstract concepts into words, on the other, they could suggest that participants perceived these skills as established terms and thus assumed everyone shared the same understandings. Consequently, a definition may have been considered redundant.

### ***The impact of soft skills on all aspects of employability***

All participants were adamant about the significance of soft skills in employability and suggested that in today's job market where a high degree of technical knowledge is a given for most applicants and employees, having well-developed soft skills is what "sets employees apart" (University Quality Assurance Officer 1). As exemplified in the following extracts, having these skills was believed to help individuals throughout the employment process, from the early steps of finding a job all the way to becoming a senior member of a company or even setting their own business.

*Employer 1: When you see a nice resume, you get excited, and you have high expectations. Then the applicant comes to the interview and you see a person who's having trouble expressing their self, you have a hard time to conduct a simple conversation with them, you see a person who has no other interests, neither sporting hobbies, or other activities that allowed them to socialize with people, you see a person with a lack of confidence in their self, and then you wonder what I'm going to do with that person now? Am I hiring them? Or not? [...] If someone does not have [these soft skills] they cannot grow professionally. So to be an effective*

*executive somewhere, these soft skills, these transversal skills, as we call them, are necessary. And I can say that nowadays at a managerial level, these skills are much more important than cognitive ones.*

*Public Employment Counsellor 1: Even if someone is a businessman, I mean they are self-employed or trying to run a business, but also as an employee. So, if you develop some skills like these, it would be easier for you to become better at your job and be more satisfied.*

Equally important was the role of soft skills in workplace adaptability as they were believed to help employees navigate the changing demands or pressures of their job role and establish good working relations with their colleagues. Evidence of this is provided below.

*Public Policy Maker 1: So you need employees to be able to manage tasks that have changing needs and skills. Because they have to adapt to each situation they face, differently. [...] This is why you want the person you hire to have those skills, to be able to cope with new and unknown situations and intense environments.*

*Employer 2: To answer your first question, [soft skills] are the first thing that will help a person adapt to an organization, once they initially join it.*

### ***A dynamic skill set***

Although participants referred to the significance of various skills with the most common being communication, interpersonal skills, flexibility/adaptability, initiative taking, stress management, critical thinking and self-awareness, when questioned about which skills they considered more important, participants suggested that it is not a matter of particular skills. Instead, as University Quality Assurance

Officer 1 explained, what is perhaps most important is to have a mixture of soft skills or as participants called it, a skill set.

*MO: What skill would you put as a priority?*

*University Quality Assurance Officer 1: It's an alloy, I can't choose one. And I think this is what makes a difference, right? Basically, how each one combines these skills that they have.*

Findings revealed that participants conceptualized this skill set as dynamic, being constantly shaped and reshaped by contextual factors; namely, one's job role, changing demands at different time periods (e.g., increased pressure for an accountant towards the end of the year) and broader area of occupation. Nonetheless, some of its aspects were considered essential in all situations and were thus described as basic skills. As seen below, one such skill was communication which was believed to remain largely significant in all contexts.

*Public Policy Maker 1: I believe, and based on what Employer 1 said before, I think it depends. It depends on your position, the position of the organization, the nature of your work, and what [kind of] work you have to do at that particular time. Of course [soft skills] are important, communication is always important. There are some skills that are always [important], but at the same time I think that different soft skills are useful or necessary depending on the role you have in the organization, in what organization you are in and the situation which you are called to manage.*

### **The need for a holistic approach**

All participants considered the development of soft skills as "essential" (Public Policy Maker 1), partly because of their contribution in aspects of employability and one's life in general, but also, because of the current absence of such skills identified in

graduates. To develop soft skills more effectively, participant supported that emphasis should expand beyond higher education institutions. Instead, a “holistic” (Employer 1, University Quality Assurance Officer 1) approach that addresses the role of higher education institutions, of other stakeholders and of individual factors (i.e., one’s willingness to learn new things) should be implemented. An example of such suggestions is provided below, where the role of lower levels of education in the development of soft skills is emphasised by Employer 1.

*Employer 1: I agree that we should look at the entire education system in a holistic way, starting with primary education, following in secondary education and so on.*

*Through my kid’s personal experience, nowadays in high school they’re bombarding students with school homework. [...] The result is that [students] don’t have time to engage in clubs as University Student 1 said accurately, there is no time left for these kids to get involved in groups, sports activities, socialize, to take initiatives, gain confidence and so on, and finally you see that they are always nervous and have the sole aim of doing well in exams and getting good grades.*

Below, the three sub-themes that sustained the theme of *The need for a holistic approach* are presented in greater detail.

### ***The role of higher education***

Participants supported that “higher education has a very important role to play” (Employer 1) when it comes to developing soft skills. They discussed several actions that can be implemented within higher education institutions, with some being more drastic than others. As seen below, an example of a drastic action supported by some participants was the suggestion for the restructuring of existing curriculums to include mandatory modules that will promote soft skills.



*Public Policy Maker 1: [...] a suggestion, which may be utopian, is for the [academic courses in] programs of studies to be awarded 220, 220 ECTS and the remainder [20 ECTS should come from] 20 courses offered on soft skills. Right? [For example, offer] a series of courses in leadership skills, communication, inter-interpersonal skills. Also, in other topics on which, through research gaps are identified among youth such as financial literacy, economic planning, career guidance, family planning. All these priorities, that will be set by the university from time to time and depending on research findings and the current situation, will be translated into elective courses. So each student will receive the basic education of the 220 ECTS, and [...] will not be able to graduate if he/she doesn't attend these [soft skills] courses as well.*

Through the inclusion of mandatory modules, participants believed that upon leaving the university, graduates will be equipped with some basic skills the very least. Whilst these modules were viewed as part of the curriculum and accredited with ECTS, participants did not offer any suggestions in terms of how they would be assessed within higher education. Instead, the only suggestion provided concerned the evaluation of the feedback provided by employers, after individuals are employed (i.e., after graduation) or following the completion of an internship or a placement.

For some participants, the addition of soft skills modules as part of the curriculum was not viewed as essential. Instead, they suggested students should be able to choose whether they want to participate in actions offered by the university (e.g., join a society, go on Erasmus, complete a placement) and ECTS should be used as an incentive. Nevertheless, participation should not be mandatory. This is exemplified below.

*University Student 1: Some of the [students' clubs] activities also cover academic topics such as psychology, philosophy, political sciences, and sociology and so on, which aim to help students develop certain skills in terms of specific fields of study, but also*

*with creativity. One way to motivate students, who usually report that because they have so many academic obligations, they do not have time to spend in student clubs, is to give ECTS, when participating in students' clubs.*

In addition to the use of ECTS as incentive, other approaches discussed for increasing students' willingness to utilise existing opportunities included better advertising and informing students regarding available options. Further, participants suggested further training of academics so that they can be more effective in increasing student engagement. The need for additional training of lectures was also discussed under the umbrella of modernising teaching methods. Participants supported that higher education institutions should incorporate more modern teaching approaches including "experiential learning" (Public Policy Maker 1), student-led learning (University Quality Officer 1) and project-based learning (University Careers Officer 1).

Lastly, the importance of higher education institutions utilising their network with other stakeholders; namely, employers and other higher education institutions, to offer students opportunities that can in turn improve soft skills was also mentioned. According to participants, through these partnerships, higher education institutions can provide students various options including placements, internships, part-time or summer employment, student exchange programs, volunteering options and simulation exercises. All of these were considered effective ways of developing soft skills and some examples of these suggestions are provided below.

*University Quality Officer 1: It would be important to have a partnership [with employers], such as internships, right?*

*University Careers Officer 1: From our experience in counselling meetings, and perhaps the employers who [are involved in] recruitment can confirm this, it is that people who participate in mobility activities, whether they are studying or do a placement*

*abroad, or even have the experience of a part-time job, even a simple summer job, an internship or voluntary work that enable them to have meaningful participation, or even participation in a summer school abroad through which they can come into contact with people from other cultures, as well as take simple initiatives, including where to stay, how to manage their accommodation and how to work with other people. Individuals involved in such actions are being assisted to gain perceive how the real-world works.*

### ***Beyond higher education***

Whilst higher education was regarded as an important stakeholder in the development of soft skills, others were deemed equally —if not— more important. Among the stakeholders mentioned were employers, the “Ministry of Education” (Employer 2) and all levels of education (i.e., from kindergarten up to high school), “trade unions” (Employer 2) and family. Starting with employers, additionally to their role in actions enforced within higher education institutions, participants believed that they have a responsibility to ensure the continued development of soft skills in their employees.

*Employer 1: Starting a job requires as a minimum an initial base of soft skills. Beyond that, surely each organization has the responsibility to develop these skills in their staff, /you can't expect someone to be born/and have all these skills.*

*MO: /So it's not just the element/.*

*Employer 1: Umm, it is something that is being cultivated and in order to help young people develop these skills, they must be trained.*

The Ministry of Education and subsequently the entire education system in Cyprus were considered equally important agents. For some, compared to higher education, primary and secondary education were more fundamental areas to target, as skill

development might be easier in younger ages than in “adult[hood]” (University Quality Assurance Officer 1). In fact, participants supported that soft skills development “is not something that we will suddenly begin to work on in higher education” (Employer 2). Rather, “we should start building them earlier on” (Employer 2).

*University Quality Assurance Officer 1: So we have to look at the system as a whole, right? That's my point of view. It can't just focus on higher education. Also consider that [students] are already adults at this age.*

Similarly to suggestions discussed for higher education, participants urged for the restructuring of the wider education system to allow time for extracurricular activities. These activities were perceived as vital in the development of soft skills, but also in reducing the degree of emphasis placed on grades. Hence, participants suggested that this restructuring can cultivate a “cultur[al]” (University Quality Assurance Officer 1) shift in the education system and students’ attitudes towards learning and continued self-development. A final stakeholder discussed was one’s family. Although participants did not refer to specific actions that can be taken by parents to facilitate the development of soft skills, their role in this process was seen as fundamental. As Employer 1, Public Policy Maker 1 and University Careers Officer 1 noted, first and foremost, these skills develop through one’s interactions with family and the values that parents teach to their children.

*Public Policy Maker 1: I would agree with what has been said so far and I would like to emphasize that I feel that this thing is something that starts from infancy and continues forever. It starts with family, formal and informal education, but also in all aspects of the individual's development.*

*Employer 1: Family and values have a role to play.*

*University Careers Officer 1: [...] I think that part of the self-confidence, independence and initiatives' taking, as you said, perhaps begins with the family.*

### ***The role of the individual***

Individual factors; namely, one's eagerness to continue improving oneself via utilising opportunities offered within and outside higher education were described as moderators for the development of soft skills. Participants explained that the availability of actions targeting soft skills may be a prerequisite for their development, however, their effectiveness is shaped by the aforementioned individual factors. As exemplified in the next extract, regardless of whether the opportunities offered have the potential to increase soft skills, when they are not utilised by students, they fail to achieve their goal.

*University Careers Officer 1: [...] perhaps a little more [attention to be paid] in the motivation of students to participate. Because you're doing a great job in organising, but maybe students at the end of the day don't make the most of what you're offering them or giving them.*

An individual's willingness to take advantage of such opportunities was believed to be affected both by contextual factors such as the impact of these actions on a student's duration of studies (i.e., lengthen one's studies) and one's area of study given that some departments (e.g., Accounting Department) are better than others (e.g., School of Applied Sciences and School of Humanities) at encouraging students to participate in these actions, as well as personality traits such as "maturity" (University Quality Assurance Officer 1) and eagerness to learn. Hence, to some extent, the development of soft skills was portrayed as an individual's responsibility too. Evidence of this is provided below, where University Quality Assurance Officer 1 talked about the role of the individual and the impact of the context.

*University Quality Assurance Officer 1: Also, from experience it seems that at the University of Cyprus, it depends on how interested students are in taking the initiative. Because developing your own skills, your personal skills is largely based on one's own initiative. And that depends on two factors: What*

*department/school are they studying in? Which field of study they follow? I believe that there is a connection, although we do not have official research data that support it, however there is definitely a relationship, which emerges through our contact with students and with the departments. The second is what motivation these students have [...].*

## Appendix 4: Focus group findings VUA

By Elke Vlemincx

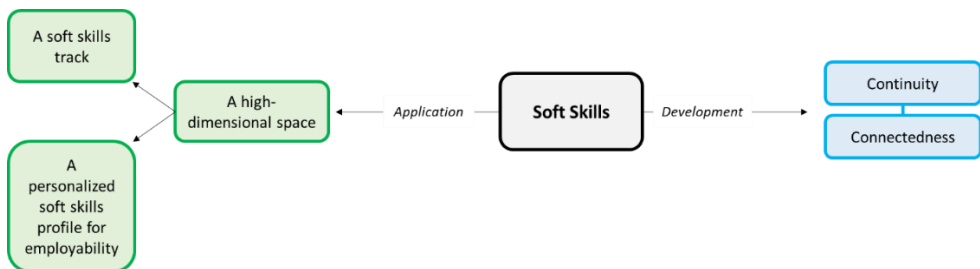
### Thematic map & overall conclusion:

Thematic analysis resulted in the thematic map below (Figure 4).

Soft skills form a high-dimensional space; although soft skills are overall considered enormously important for employability, which soft skills are important and require priority in the development of HE students, depends on the career you choose and where you are in your career path. The importance of soft skills needs to be evaluated considering a long-term soft skills track throughout education and career. This also implies that it would be impossible to create one perfect soft skills profile for employability, but soft skills profiles need to be personalized.

In contrast to the many dimensions of soft skills, development of soft skills consistently requires two key elements: continuity and connectedness. Soft skills require continuous training that transcends the boundaries of higher education, and easily flows from higher education into employment. To achieve this, close and dynamic collaboration of students, higher education institutes and professionals is suggested.

Figure 4.  
Thematic map.



## **1. What is the perceived importance of soft skills for employability?**

### **Theme: A soft skills track**

Soft skills are perceived as enormously important for employability, but the importance of soft skills is partly context dependent. In other words, the importance of soft skills lies 'in the eyes of the beholder'. Depending on the career path you choose and where you are in your career path, other soft skills are essential. The importance of soft skills needs to be contextualized in a long-term track throughout one's education and career.

### **1.1. Some skills are important for every career path**

Some skills are important for every job or career. Having those skills will help you throughout life and add a lot of personal value, regardless the job or career you choose. Examples of such skills are discipline, personal leadership and sensing and understanding your environment.

*HR professional 1: A number of soft skills, which are more within yourself and which are important, I think, in every job or every environment, such as discipline. It doesn't really matter what type of job you do, but discipline is always going to help you. Personal leadership or sensing your environment are skills, I think, that can always help you in whatever job or environment you are in.*

### **1.2. The importance of some soft skills depends on the chosen career path**

Other skills are not important for all professions, but are specifically important for specific professions. For example, marketing and sales jobs require soft skills, but soft skills are not that important for



operators, programmers... For the latter, technical skills are far more important.

*HR professional 1: Personally, I think they are hugely important. But it is context dependent. I can imagine, the organization I work for is a marketing and sales organization here in the Netherlands. There, your soft skills, and especially everything we mention here, are enormously important to be successful. But we also have factories abroad, where much more technical skills than soft skills are required. Because there we are simply looking for process operators, people with technical knowledge who can control machines, who can build computers. And they don't really ask for any soft skills at all. There they just ask people who can build computers and who can build machines. I think it is quite context dependent, but for me personally these soft skills are enormously important for employability.*

*Program director: Not everyone has to be equally good on every soft skill, but in a team of people, for example, you can all work well together.*

### **1.3. The importance of some soft skills depends on where you are in your career path**

Some soft skills are not expected for starters as they require more time and experience to grow. For example, personal leadership is a skill that requires time to grow, and you can't rush this process. For these soft skills that slowly grow, it would be essential to plant a seed, to prime them, during HE, such that the growth process is initiated and can continue and blossom at the work place. The initiation of this process is essential to gain speed with the proper investments during employment, and it requires an awareness and understanding of which soft skills are essential in your future career, and the ability to reflect on this.

*Program director: A lot of soft skills you develop when you start your first real job. They need to be primed. They don't have to be completely crystallized. ... For example personal leadership, that is rather difficult. It will take you a few years before you really develop that well for yourself.*

*HR professional 2: I often find it surprising in terms of hard skills how quickly people can reach a very good level? When I look at recent graduates who start working for us in a new technically complex environment, there are people with two years of work experience who already surpass colleagues with 13 years of experience in terms of hard skills. But when we talk about things like personal leadership, it would be quite a unique thing if it happened that someone with 2 years of experience would pass someone else just like that. That is also what we see in practice as the greatest challenge, how to let people grow in that regards.*

While some skills have time to evolve and grow, some skills are essential for starters because they are important when applying for jobs. These skills should thus preferably be fully developed and crystallized during HE.

#### **1.4. Expectations of soft skills by employers are high compared to knowledge**

Employers have high, if not impossible, expectations of job applicants when it comes to soft skills, even for so called starting positions. Job ads include a very long list of requirements, including soft skills, that are unrealistic for graduates. Employers find these soft skills so important, as they are more difficult to learn than hard skills. However, when selecting job candidates, the presence or absence of very specific skills is mostly not a decisive factor. How someone presents themselves through a motivation letter, for example, is much more important, and thus those writing skills and knowing how to present yourself are essential when applying for jobs.

*HR professional 1: Organizations are always looking for the sheep with the 5 legs, and that as cheap as possible. And that does not exist. ... If you know how to write a good letter and a good resume with the right motivation, then you really stand a chance of getting jobs for which you actually only meet seventy percent of what they ask. That is sometimes really enough to get a conversation, and to show yourself.*

## **2. Which soft skills are a priority for employability?**

### **Theme: A personalized soft skills profile**

Depending on the career path you choose and where you are in your career path, other soft skills are a priority for employability. There is thus not one perfect soft skills profile for employability. A soft skills profile for employability needs to be personalized.

### **2.1. Some skills are a priority for every career path**

Discipline was named as a crucial and universal skill, which is of essence in any job or career, and seems to be lacking in starters. In the transition from HE to the work field, suddenly, a lot more discipline is required to do those things in a job that need to be done but that you are not passionate about, i.e. the must do's. A lot of starters struggle with this sudden increase in discipline that is required. Whether discipline can be taught is up for discussion; some doubt it, others think that everything is learnable. However, when thinking about ways to develop discipline, not obvious or good suggestions were formulated.

*HR professional 2: I notice that, when stepping from education into the professional field, the bar is raised somewhat with regards to what is expected of discipline. And I notice that not everyone tackles that hurdle as easily.*

The ability learn, a personal skill, together with adaptability, the ability to adjust to the social context, was considered a very powerful combination of skills for starters. The ability to learn is particularly important as it allows faster growth of other soft skills.

*HR professional 1: Personally, I find learning ability for starters really enormously important.*

*HR professional 2: Absolutely. And I would like to join that with adaptability. Because learning ability is about yourself, but adaptability is about your environment as well. But the two together are a very strong combination.*

Also building relationships (which includes, but is broader than, networking and collaboration) is considered enormously important. Relatedly, collaboration is essential in any organization, and thus an important skill regardless of job or position. Listening is considered very important, and receiving feedback appears to be important yet problematic in strong young potentials.

Resilience was not initially mentioned as a critical soft skill, but was brought up by one of the HR professionals at the end of the discussion as a skill they has recently caught their focus. In today's complex and stressful life with high burnout prevalence, resilience is essential to cope with stressors and make life work. All participants agreed they had overlooked this skill, and considered it as an essential soft skill.

## **2.2. Some soft skills are a priority for graduates**

Some soft skills are particularly important when applying for jobs, and thus a priority for students and graduates looking for jobs.

Examples are networking, resume writing, storytelling and promoting yourself, which are all conducive for finding a job.

Also authenticity and assertiveness were considered essential during job interviews and when joining a new team of colleagues. One of the HR professional argues that starters do not speak their mind and too easily conform to social desirability. The graduate remarks that a certain level of confidence is required to speak our mind while being new at a job. In addition, the call for assertiveness somewhat contrasts with the adaptability that employers expect when integrating a new social work contexts.

*Junior Lecturer: You must be able to write a good letter and you must be able to sell yourself during an interview. So these are all soft skills that you need at the very beginning of the application process. So I think indeed you can develop a lot, but these must be at a minimum level at a time when you are about to start.*

*Graduate: As far as I am concerned, [in the bachelor] it is hardly about networking. ... I have the feeling, how I experienced it in my bachelor, is that it is a lot about communication skills. They are always kind of hammered on. But networking is barely talked about in my opinion, while I think that in your career you may come across a lot of jobs if you do a little bit of networking and sell yourself a little bit and create some kind of position for yourself.*

### **2.3. Some soft skills are not a priority for new interventions**

While communication skills are considered as essential skills, regardless of the chosen career path, it seems that communication skills are worked on extensively and continuously in higher education (through education trajectories), and as a result are well developed in

graduates. HR professionals confirm that starters do very well presenting, writing, pitching...

Creativity, out-of-the box thinking and storytelling are less important for starters in general, but could be helpful for some jobs (e.g. marketing, sales). One of the HR professionals even argues that the latest generation of starters is too creative, as they lose sight of what is realistic and what not.

Some skills that are initially mentioned when thinking of soft skills don't return to the discussion: empathy, forming a vision, influencing, inspiring, leadership, negotiating, time management, management, stakeholder management, debating and discussing, problem solving, critical thinking, and being solution oriented.

### **3. How can soft skills development be implemented in the higher education curriculum?**

#### **Theme: Connectedness and continuity**

Both connectedness and continuity are key in the development of soft skills. Connectedness implies that the development of soft skills needs to be conceptualized and implemented by means of close and dynamic interactions between different stakeholders, including students, HE and employers. The contributions of employers in HE seems difficult, but very valuable. In addition, development of soft skills preferably involves personal coaching of students to make them aware of the soft skills they could benefit from in their future career track, to provide advice on which skills to further develop and how, and to evaluate progress in skills development through reflection, creating a personal and confidential bond between coach and student. Continuity refers to the fact that skills development needs to flow easily from HE to employment; allowing a fluid transition from HE to employment.

### 3.1. Continuity

#### 3.1.1. The transition from HE to employment needs to be more fluid

The stories of education and employment need to interweave more. The development of soft skills needs to transcend the boundary of graduation. During HE, planting a seed is more important than aiming to fully develop skills. It is essential to raise awareness and create an understanding of which soft skills are essential later in one's career and to start the development and self-reflection of those soft skills to gain speed for further growth at the workplace. What is essential is a smooth continuation of soft skills development.

Related to this, soft skills training needs to be implemented close to graduation and thus the transition from student to starter. Students grow a lot throughout their education, and the best 'assessment' of a student's profile is at the end of their program.

*Graduate: We do indeed have study and career counseling and that is mainly focused in the first year and the second year. While in your third year, you think how do I actually continue and what now? And I think that particularly before that transition from study to work field, you really need that reflection. And then I can refer back those study and career counseling work groups in the first year, where we did this test and this test. But, well, I am not the same person anymore as I was 2, 3 years ago. So, it is different.*

Is it necessary to formally assess student's soft skills? Overall, there seems agreement that grading soft skills misses the mark. Far more important than grading is raising awareness of essential skills and

initiating the development of soft skills, allowing further growth along the career track.

In addition, grading of soft skills is a grey area, and for some skills even impossible. For example, some skills can be assessed objectively, such as writing, presenting, while others cannot be assessed or assessed objectively, such as personal leadership.

One deviant opinion was that of a junior lecturer, who states that, from an education point of view, you want specific end terms of any skill you aim to develop in HE, and transparent criteria to assess that.

*HR professional 2: Why should you judge? What is the purpose of assessment? What is the added value? If I look from my point of view as a professional and we want to recruit people, above all, I want a seed to be planted there, that something has been started, which will then continue to grow with us as an employer. But I'm not interested in knowing if that person has a 10 out of 20 or an 11 out of 20. I especially want some speed to be gained there, around a number of those skills to go on, to start working that that learning ability is actually affected. I do not always see the added value of assessing with a number if you want to grow something.*

*Graduate: So I don't think it's so much that [soft skills] need to be judged, but more that you need to be aware that you're developing it.*

***Deviant case:***

*Junior Lecturer: You want to make assessment as transparent as possible. You may want to show an assessment rubric, from here you will be assessed. And if you then get terms such as whether it is convincing or authentic. Of course that cannot be determined objectively or anything, you remain somewhat subjective.*



*But you want a kind of pass or fail, because you want to deliver a certain minimum level in the end, right? What if someone completely misses the mark? Then there must be some sort of control mechanism.*

### **3.1.2. Soft skills need continuous training and practice**

Isolated trainings have only little return of investment, and hard to justify scientifically. Training of soft skills needs to be integrated in continuous loops of training, application and reflection, crossing the boundaries of higher education and employment.

*HR professional 2: Isolated training is scientifically debatable. The 70:20:10 method says you have 10% formal learning, 20% learning from interactions with others, 70% learning at the job. What you need is someone who ensures that those blocks will come together and that those will be related to each other. Because now it is still too often like, "I follow a training or I am going to try that", while it is essential to run cycles, "I try something, I am going to work with it, I am going to reflect on it and I am experience those and those problems. Then I actually want to add a little extra training and then I will try again" and it is actually those continuous loops that you are going to make, that allow [skills] to grow.*

## **3.2. Connectedness**

### **3.2.1. Personal, expert coaching of students throughout the curriculum for soft skills and career guidance would be ideal**

Reflection of a student's soft skills development, and advice on how to enhance development of a skills profile, occurs ideally continuously

throughout a program, and under supervision of a coach with whom a confidential and personal bond is created.

*HR professional 1: I think in a world where there are no obstacles that it would be very good if every student had their own coach during the entire curriculum. The same coach who can continuously follow that person and who, for example, has an official moment with them every quarter or every semester to talk to them. Ideally, this should be someone who does not assess, but who invests purely in the personal development to help that student further, and make him or her aware that you need to further develop certain skills. I think that in my ideal world that would be the way to do it, also to be able to create that confidential environment, because that's where the confidential bond will develop at some point and I think that can help enormously.*

### **3.2.2. A variety of perspectives from a heterogeneous group of stakeholders is essential to better understand the development of soft skills, including employers**

Dynamic interactions between students, higher education professionals and employers are important to better understand soft skills development in students and starters.

For example, engaging employers in HE would be very valuable, but appears difficult.

First, HE programs are generally inflexible to implement external contributions of employers.

In addition, students don't evaluate these external contributions well and show little interest in the first bachelor years.

Finally, employers are generally not highly motivated to engage in HE. It seems that engaging professionals would require either strong passion of the professional for education, some sort of return of investment or common priorities.

*HR professional 1: I think it is enormously important to contribute to the development of students and actually for two reasons; one because I really enjoy developing people. And on the other hand, as an organization, we require the best people on the market. And I think you should only ask for it if you also contribute to developing the best people on the market. But that's my personal belief. When I look at it, I am in an HR team of 7 or 8 within the Benelux. I am the only one who is very actively involved in this. All my colleagues think "oh yet another student, there you have [HR professional 1] with his interns again. Oh he has a little school assignment again". They just don't feel like it. To put it like that. I am already unable to motivate my direct colleagues. So I find it very difficult to give you advice on how you can mobilize and motivate employers to contribute more. I think you should really look for the people who actually just like me and perhaps also [HR professional 2], who have a personal passion for this to help make the lives of students better and more beautiful and developing people.*

*HR professional 2: I'm going to put on my manager's hat for a moment and think very economically here. If a company is going to invest time and energy in something, we expect a certain return of investment. What I notice, for example, in our organization, we are rethinking how we are going to shape, what we call, our Young ... Program. And what I feel is that there is room for connections with those universities or those colleges, where it is valuable to set up a connection because regularly, I am going to put it very flatly, we could hire their students as new employees. There is really more potential to start thinking about how and what. I notice, what should be done, is actually... The education field tells its story until students graduate. And then our story begins of how we do a young work program. And then I think "no", this just has to flow into each other. And especially if it is a particular educational institution that we would be able to recruit about ten really good people every year from, for example. I think that could really be worth the investment, from a company's point of view, for example. It is not up to me to judge the investment or the*

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*position of an educational institution, of course. And then, for example, we look at what you have worked on, and how do we ensure that it continues. I still see a lot of opportunities there. Now, both follow each other.*

## **Appendix 5: Focus group findings UOC**

*By Anna Touloumakos*

### **Themes identified:**

#### **1. To infinity and beyond: categories of soft skills**

The term seems very common and stakeholders who find them really important seem quite confident and comfortable talking about what they are, which ones are the important ones for employability purposes and how to best develop them. Beyond appearances, however, it becomes evident that categories “things” called soft skills expand towards the infinite and make potentially the term ambiguous.

Liaison Officer for example recounts a set of will the participant (Multiple Roles) mentions teamwork and communication but also personal characteristics (for example responsibility) and skills (autonomy and flexibility).

*(Liaison Officer 2) Participant: “I believe that soft skills are basically characteristics of individuals that impact on their relationships with others and oneself. [...] that can be categorized in a broader umbrella of social skills, that are communication skills -the extent to which we listen, or we don’t listen, how we express ourselves, all the categories that we know basically.”*

*(Multiple Roles) Participant: “First, mentioned already, working in teams. It seems that this comes as No1 among employers and graduates (in postsecondary). Second, professional and technical skills. That is, one’s own area of expertise, including knowledge specifically how to implement, but that’s a separate*

*discussion, not relevant to our discussion. Third, mentioned too, is interpersonal, communication skills (also highly rated among employers and graduates) [...] Next is responsibility, autonomy (among both groups). So being able to function autonomously. Creative thinking, acting creatively and doing creative stuff as part of my job. Flexibility, adaptability (among graduates this time), life-long learning, literacy, taking initiatives, entrepreneurship, digital skills, numeracy and foreign languages.”*

And further, to the next participant (the Entrepreneurship consultant) yet another a set of personal characteristics and skills are presented (politeness, self-efficacy, resilience etc.) to the point where, arguably, the conceptual limits of the term become lost.

*(Entrepreneurship Consultant) Participant: “I would, therefore, say positivity, optimism, success orientation, so to have, to show, they are positive. I would say communication because it plays an important role. I keep in mind how important it is to keep in mind where I stand, where others stand. Right. Setting the limits. Because this, politeness, the ability to present myself, but also coexist with others. I would add self-motivation, self-planning, self-efficacy, resilience, right?”*

## **2. Soft skills as means or ends?**

Various soft skills categories are offered by participants in the focus group when they are asked to address both the question about which of them are important but also the reasons why they find them important, suggesting that means-and-ends clash, in this case. Indeed, responses among participants on the reasons why soft skills are considered important recycle the categories of important soft skills reported by other participants. This indicates that the limits of the categories are ambiguous, or that they mean different things to different people. The participant (the entrepreneurship consultant)

brings to the fore self-knowledge, as one of the important soft skills categories for employability. In particular, s/he said:

*(Entrepreneurship Consultant) Participant: “[...] I should add something to this, if I may, that this means in essence that one knows what s/he wants, knows oneself, and therefore, knows her/his potential, and promotes it.”*

A bit later, another participant (liaison officer 1), engages to the discussion about the same soft skill, yet addressing the question about what makes it important, and about the same category is also mentioned by another participant (liaison officer 2) in the same question and therefore, a category previously encountered as a means now it is presented as an end.

*(Liaison Officer 1) Participant: “ [...]It comes to me as an umbrella all this, self-esteem, self-knowledge, that is knowing what are my abilities, what is that I can do, so that I can present and promote myself.*

*(Liaison Officer 2) Participant: “[...] This has to do too with having an impact and with persuasion, not in relation to if we can “sell” products or services, but also ourselves. Can we promote ourselves? And in order to do so, do we have the soft skills to know oneself? We need to have self-knowledge.”*

### **3. Less is more, or more for less? The soft skills that “win the game” for employability**

The ambiguity and expansion of the terms does not mean that there are not some key categories identified, consistently as the most important, and which can be organized at the interpersonal (including communication, teamwork and conflict

management/resolution skills) and the intrapersonal level (flexibility, adaptability, self-understanding and self-management). One Participant (University Professor), summarizes nicely some of the key categories drawing from the contributions of other participants in the focus group:

*(University Professor) Participant: ... to complete a project more than one individual need to work together. Accordingly, and following from this, interpersonal skills are really important. Empathy, making concessions, etc. I will focus on conflict resolution [...] For me, an important soft skill is to understand that conflict is something, is not personal at work, this is an important part of being able to resolve it, that is that you should not take personally any disagreement or conflict at work. And I focus... erm for me this is one, erm... this falls under the umbrella that LOP2 mentioned earlier, all these interpersonal skills and communication and I think it is very important because not being able to deal with or fearing conflict and creating conflict, may create other problems at work, same as also the difficulty in dealing with conflict [...] So thinking about this dynamic background that we live in, where changes are not always planned, I would say that flexibility, adaptability are very important and I am going to link this to what ECP said and I strongly agree, this does not mean only to be able to find solutions or to deal with things from different perspectives, but being inclined to constantly learn, because this is the only way we can adjust to the constantly changing environment."*

Finally, the same participant mentions that given the circumstances adjusting and responding to an environment for gradually requires more for less is a crucial soft skill:

*"The last I would like to focus on is that due to these changes, work environments become gradually more demanding. That is, employees are asked to do progressively more for less. Less time [...] less money [...] less resources, so for this to be dealt with*



*very important skills are taking initiative and being autonomous.”*

#### **4. The importance of soft skills: when you know what you are missing**

Participants presented their views with regards to the importance of the soft skills, through bringing to the fore the rhetoric, evidence or personal experience on soft skills requirements, and deficiencies. One participant (University Professor), for example, referred to the important of soft skills are key to responding to environmental (and later workplace) requirements. The second participant (Liaison Officer 3) resorted to the documented soft skills deficiencies, when discussing what makes them important.

*(University Professor) Participant: “The second characteristic of work for the past two decades is the constantly changes and not the changes that take place within the organization, that it the organization decides to change to become better, but sudden/unexpected changes. That is in the previous decade we have had the economic crise, the economic crisis imposed important and sudden changes to organizations. The same happened now with the pandemic, right? So, thinking about this dynamic background that we live in, where changes are not always planned, I would say that flexibility, adaptability are very important and I am going to link this to what ECP said and I strongly agree, this does not mean only to be able to find solutions or to deal with things from different perspectives, but being inclined to constantly learn, because this is the only way we can adjust to the constantly changing environment.”*

*(Liaison Officer 3) Participant: “[...] What I have seen, at least, in the groups, they lag behind in taking initiatives, in managing time, in creativity, this important the first think I noticed, and to an extent, in communication skills”*

Moreover, some participants, highlighted the multiple benefits from the employment of soft skills in practice as a means to address what makes them so important.

*(Liaison Officer 3) Participant: [...] and I am talking about the accepting diversity. This is important to be able to work in teams, in general to be able to work in a business, in an organization, and same goes for something, I forgot to mention in the previous round, and this is multiculturalism, and issues of cultures, because let's not forget that many graduates will look for posts abroad or in environments that are very "far" [dissimilar/my addition] to what they were used in the past.*

## **5. Approaches to training soft skills in HE: embedded or standalone, old or new?**

With regards to training and assessing soft skills, primarily within HE, in some cases existing approaches/practice inform or even conflate with proposed methods and approaches to soft skills development within HE. One participant (the university student) mentioned about current approaches and practice:

*(Student) Participant: "Now... (hesitates) for sure there is some effort at least from U of Crete, my experience taught me enough stuff, and at teamwork promoted in the class, this is not advised by all staff, but most of them they do want it, they want it, so actually they do encourage us to create groups of people, for example, from different cultural backgrounds, or students unknown to us, and based on that it openness to diversity is cultivated. Working with someone who I did not know before, or has different beliefs to mine, but this whole synthesis and the making is something really beautiful in the end."*

And when the discussion focuses on the proposed approaches, similar practices/approaches are heard:

*(University Professor) Participant: "[...] however, in my opinion, the only way to develop soft skills within the context in higher*

*education, is indirectly, as Xparticipant mentioned before as part of the modules, through encouraging group assignments, workshops, internships, projects that will introduce them to the process. To spoil their soup a bit.”*

But these similar ideas are elaborated more, furthermore in the discussion, and offering alternative for its implementation.

*(Liaison Officer 2) Participant: “This could be, there would be training on those skills, at least the social ones through experiential means and at the group level, with the use of experiential methods, such as -and this is only indicatively- role playing, self-descriptive exercises as part of workshops, projects and if some sensitized professors use some such methods, this will be due to their good will, I imagine, as part of projects or workshops.”*

During the discussions, two quite distinct, yet potentially complementary approaches emerged as appropriate to soft skills development within HE (and beyond). One participant (multiple roles) promotes an embedded approach:

*(Multiple roles) Participant: “It goes without saying the it has to be embedded, this can’t work as a stand alone module? What will you tell them in a standalone module? Come and work in a group with no subject? This can’t be done. (An assertive tone).”*

The student of the group, agrees with this view later on:

*(Student) Participant: “[...] through the experience, these are skills that we develop through the experience and for that reason I believe that is through the group working with experiential methods, as mentioned before, we can have this outcome, and because I do have through psychoeducational groups, I think it would be helpful, beyond group projects, projects within each individual modules, and not as a separate module in the curriculum.”*

By contrast both Liaison officers and following the moderators' clarifying question as to whether they see the training modules as standalone modules, are positive:

(Liaison Officer 2) Participant: *"I see for sure these are standalone modules, specially targeted, and there is need for these, there is a considerable need (assertive tone)."*

(Liaison Officer 1) Participant: *"I would agree to this, through experiential learning and specializing in the subjects (contents)".*

And beyond HE:

(Liaison Office 3) Participant: *"I believe, though, that having workshops maybe within career centers and liaison offices or elsewhere, it is also important."*

## **6. Soft skills assessment**

Although short, the discussion about the assessment of soft skills revealed that while stakeholders find it important to have sound measure and ways to assess, participants did not outline a specific approach. Participants referred to "self-report measures, questionnaires, personal, direct and indirect questions". There was though an example of a use of a quantitative measure, and as part of this description emerged the need to measure things that are explicitly defined (Participant with multiple roles, lines 949-971).

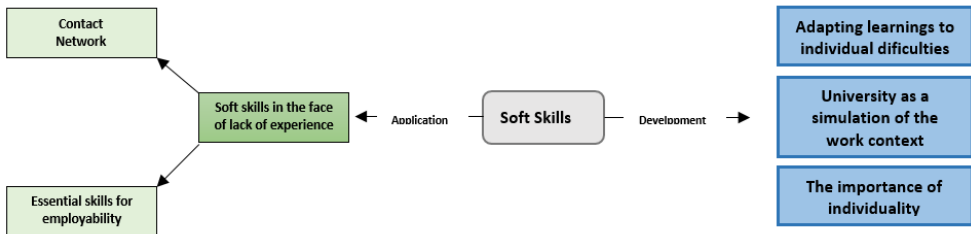
## Appendix 6: Focus group findings UJA

*By Manuel Vivas Fernández*

The analysis of the focus group interactions leads us to two central themes of great interest. On the one hand, the importance of soft skills when faced with a lack of work experience and, on the other hand, the importance of designing a learner-centred method, preserving individuality, adapting the teaching of soft skills to the difficulties of the specific sector and emphasising the simulation of real situations.

Figure 5.

Thematic map.



### Soft skills in the face of lack of experience

All participants agreed on the importance of soft skills for employability. In fact, they consider it central to the search for a job after superior education. This statement is supported in the focus group by the fact that most university graduates finish their studies without work experience: when you have no experience, having a good set of soft skills and knowing how to demonstrate it in an interview is your greatest asset.

Jobseeker 2: When we finish our degree we have no experience. Therefore, our plus point can be to have those skills, which we will

demonstrate in the interview and then we can gain points in our favour. There are people who have been working for years but have forgotten about the soft skills [...]. That is why, right now, the advantage we have is what we are talking about: knowing how to speak, having empathy, analysing situations, solving problems, having leadership... Because we don't have work experience.

It is for this reason that soft skills take on greater importance in the university context, as good learning and development of soft skills before finishing university education will be essential to facilitate employability.

### **Contact Network**

The essential factors for employability were then presented.

In a world where there are more and more skilled professionals and fewer jobs, personal contacts are of paramount importance for employability. Having a wide network of contacts who know how you work can facilitate a wider range of job opportunities.

Jobseeker 3: I think when you meet people in your sector and relate with them, it may help you to find a job. I think having contacts always makes it easier to find a job. It is important to create a network of contacts that benefits you or that can benefit someone you know.

Participants explained that soft skills are very important to relate and these, in turn, are necessary for employability.

The soft skills they considered most important, which we will indicate in the next point, are important because they help us to socialise. Participants think that a person with good soft skills will create more and better links with peers, university professors or acquaintances and, in turn, these links facilitate the emergence of job opportunities. In addition, a person with strong social skills and bonds will be a person with higher self-esteem and more self-confidence to do a job interview and enter the labour market.

Student 2: Even when you already have a job, it is very important to keep those bonds and to be able to socialise well with your own colleagues. Moreover, to be appreciated by both your bosses and your colleagues. Even if you have contacts and a job, if you cannot show that you have those social skills, it is more difficult to keep that job.

### **Essential skills for employability**

The soft skills that were indicated as most important in the focus group were communication, teamwork and stress management.

Of the three skills indicated, the most important for the group, with all agreeing, was communication. The group believes that if a person does not have good communication skills, he/she will not be able to take advantage of all the soft skills. Communication is what facilitates the emergence and development of soft skills.

Student 3: Having that competence (communication) means that, whatever the level, if I am able to explain my ideas clearly, whether I am explaining something to an audience of two hundred people or just one person, I will be able to convey how I have solved a problem so that it does not happen again, how I have analysed a situation and what the essential elements are.... Because if I keep it to myself and do not communicate it, it is useless. Communication is necessary in every job [...] You're always going to have some kind of communication with whoever it is, that's why it's the most important of all, without communication we can't demonstrate that we have other skills.

Good teamwork skills will also be vital for employability, because in most jobs we have people we work with in parallel. You need to be able to adapt to the demands of your colleagues, to their needs and to be able to work as part of a team, beyond the individual.

Jobseeker 3: Teamwork helps you to bring out the best in each person [...] if a person does not know how to present something in public but is great at analysing information or designing presentations. It will be very important to know how to delegate the appropriate functions to each person.

Finally, it has been pointed out that every work environment and every task is accompanied by a varying degree of stress. Stress management skills are necessary for personal life, for study and, of course, for employability.

Jobseeker 2: Stress is in all kinds of jobs and no one here has been taught stress management techniques or resources. This is necessary in general. Stress is in all jobs. It is even necessary for the university itself. I have eight exams the following week, five papers with expositions... Can you teach me a little bit how to manage stress to face that week, please? Well, that is not the case; you still have a lot of work to do without any help.

The combination of these three skills forms the perfect set of soft skills needed to get and keep a job.

### **Adapting learnings to individual difficulties**

When we talk about the wide variety of soft skills, we have to take into account that not all soft skills have the same weight in all jobs.

The group aims to the need to adapt the teaching of soft skills to the work environment of each specific employment sector.

Student 1: For an engineer, for example, teamwork and stress management will be more important than creative thinking.

However, in all contexts there are soft skills common to all jobs, such as communication and empathy.

This is why it is very necessary to teach general and specific skills.

In order to teach them, a practical and long-standing approach is chosen through participation in workshops, case studies or a specific annual subject. This should be maintained for all university courses.



## **University as a simulation of the work context**

The group considers that, currently, soft skills are not taught in the university context. *The university does not teach soft skills, but it is a means to learn them*, in words of participants.

Student 3: The University forces you into situations where you have to develop those soft skills, but higher education does not really teach how those soft skills should be developed. The University simply puts you in different situations but it doesn't teach you how to manage a team effectively, how to manage a group, how to manage your time, how to make a public presentation [...] There are many people who have a bad time and it would be necessary for the University to teach and reinforce them to tell us what we can improve, how we can do things better.

At university, we meet new people and new situations and sometimes they can be similar to situations that we might encounter in a real work environment.

Even so, it is necessary that skills are taught explicitly, taking great care with the feedback given to the student, as this teaching, if not accompanied by quality feedback, can negatively affect the student's self-esteem and, in turn, the development of their soft skills.

Jobseeker 3: We have to be careful with the feedback we are given in relation to soft skills. A person with communication problems can be very negatively affected if the feedback they receive is not approached in a positive and constructive way. It is important that we are told our strengths and weaknesses honestly, but always with respect and in a learning way.

It is important to learn through simulations of situations that may occur in a work environment, accompanied by constructive feedback adapted to the student, highlighting their strengths to be reinforced and their points to be improved.

## **The importance of individuality**

Finally, the group highlighted the role of individuality in the development of soft skills.

Jobseeker 2: Teamwork is important, but not in every job, you are going to find colleagues who want to work in a team. That is why I would prioritise my own skills. That is, we work on our own soft skills first so that we can then work well with our colleagues. You can often find yourself alone in a work situation, so it is important to learn how to handle it individually.

In a competitive environment where jobs are not numerous, the importance of one's own skills development is remarkable. That is why, for soft skills, the individual must be self-critical in order to get to know which soft skills are more developed and which need more work. The teaching of soft skills is necessary, but it must be the individual who must show a proactive attitude in order to benefit from these teachings.

## Appendix 7: Survey

In the following survey, we are interested in your opinions on the role of soft skills (i.e. non-technical skills) in higher education and future employability. There are no good or bad answers.

### Closed questions

1. How important do you consider the following skills for doing well in life in general?
2. How important do you consider the following skills for employability at a graduate level?
3. For each of the following skills, to which extent do you agree with the statement that the skill *can be* learned in college or university?
4. For each of the following skills, to which extent do you agree with the statement that the skill *should be* taught in college or university?
5. For each of the following skills, to which extent do you agree with the statement that recent graduates possess the skill?

Q1 and Q2	Not at all important	Slightly important	Moderately important	Very important	Essential
Q3, Q4 and Q5	Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1. Communication Ability to transmit something to someone in a clear and understandable way					
2. Team work Collaboration with others as part of a group					

<p><b>3. Problem solving</b>                  The process by which individuals attempt to overcome difficulties, achieve plans that move them from a starting situation to a desired goal, or reach conclusions through the use of higher mental functions, such as reasoning and creative thinking</p>					
<p><b>4. Critical thinking</b>                  A form of directed, problem-focused thinking in which the individual tests ideas or possible solutions for errors or drawbacks. It is essential to such activities as examining the validity of a hypothesis or interpreting the meaning of research results</p>					
<p><b>5. Decision making</b>                  The cognitive process of choosing between two or more alternatives, ranging from the relatively clear cut (e.g., ordering a meal at a restaurant) to the complex (e.g., selecting a mate)</p>					
<p><b>6. Stress management</b>                  The capacity to withstand pressures and strains by adaptively using specific techniques and strategies to deal with stress-inducing situations and the state of being stressed</p>					
<p><b>7. Time management</b>                  The practice of using the</p>					

time that one has available in a useful and effective way, especially in one's work					
<b>8. Planning</b> The ability to think about and successfully manage activities, with the help of any available resources, to achieve specific goals					
<b>9. Leadership</b> The capacity to lead, motivate and develop a team; communicate and promote visions and goals					
<b>10. Flexibility</b> The ability to adapt and work effectively in various situations and with different people					
<b>11. Innovative thinking</b> The ability to come up with new ideas and novel approaches to problems					
<b>12. Interdisciplinary thinking</b> The ability to draw insights from multiple disciplines and apply them to one's area of focus in a way that challenges traditional notions and enriches the conversation around it					
<b>13. Self-reflection</b> The examination, contemplation, and analysis of one's thoughts, feelings, and actions					

<p><b>14. Assertiveness</b> An adaptive style of communication in which individuals express their feelings and needs directly, while maintaining respect for others</p>					
<p><b>15. Self-efficacy</b> The belief that you are able to attain desired results</p>					
<p><b>16. Intercultural awareness</b> Having an understanding of both your own and other cultures, the similarities and differences between them in terms of values, beliefs, or behavior</p>					

**Open questions:**

1. Which soft skills that were not mentioned in the list above, do you consider important for employability at a graduate level?
2. In your opinion, which are the top 3 soft skills that are required to secure a job at a graduate level?
3. In your opinion, which are the top 3 soft skills that are required to maintain a job at a graduate level?
4. In your opinion, which are the top 3 soft skills that make recent graduates do well in life in general?

**Demographics:**

1. I identify myself as
  - a. agender
  - b. genderfluid
  - c. man
  - d. non-binary
  - e. questioning or unsure
  - f. woman
  - g. prefer not to disclose
  - h. other
2. My age (in years) is:
3. My profession is:
4. My stake in higher education is (please select all that apply):
  - a. Student
  - b. Alumnus
  - c. Job seeker
  - d. Professional in higher education involved in career training
  - e. Professional in higher education involved in student advice or counseling
  - f. Professional in higher education involved in teaching
  - g. Professional in higher education involved in curriculum development
  - h. Professional in higher education involved in initiatives to enhance soft skills
  - i. Professional involved in higher education through curriculum development
  - j. Professional involved in higher education through internships or apprenticeships
  - k. Professional involved in higher education through work integrated learning

← for Professionals in higher education:

  - The domain of higher education I am active in is:  
[e.g. behavioural sciences, social sciences, exact sciences...]
  - My area of expertise is:

- l. Professional involved in HR, recruitment or selection of personnel
- m. Professional not involved in HR, recruitment or selection of personnel

← for Professionals:

- The employment sector I am active in is:
- The type of business I work for: (e.g. small, large private)
- I have experience being in a management position
  - yes
  - no

5. In my own words, I would explain my stake in the role of soft skills in higher education as follows:

6. Do you have – or have you had – any disability or chronic illness?

a. Yes

Which disability or chronic illness do you have or have you had?

b. No

c. Prefer not to disclose

7. Think of a ladder (see image) as representing where people stand in society. At the top of the ladder are the people who are best off—those who have the most money, most education and the best jobs. At the bottom are the people who are worst off—who have the least money, least education and the worst jobs or no job. The higher up you are on this ladder, the closer you are to people at the very top and the lower you are, the closer you are to the bottom. Where would you put yourself on the ladder? Choose the number whose position best represents where you would be on this ladder.





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