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MASH-up n' HEI

Multimodal Approach for Social-Emotional Learning in Higher Education Institutions

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'Bridging the Science-Practice Gap' Evidence Synthesis Report

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Executive Summary

Socio-emotional skills are essential in all stages of life to thrive and flourish. Higher education, in particular, comes with specific challenges that require socio-emotional skills in order for students to feel well and do well. Transitioning to higher education involves exposure to an unfamiliar and uncertain environment, with less structure than before and new social networks to be built. Coping with these transitions is difficult for any student, but in particular for students with cognitive learning difficulties, such as difficulties in attention, memory, thinking, understanding, or language. It is therefore pivotal that socio-emotional learning to develop socio-emotional skills in higher education is implemented in such a way that it is effective for all students, including students with cognitive learning difficulties.

The goal of this report is to provide an evidence synthesis to better understand how we can improve socio-emotional learning in students with cognitive learning difficulties in higher education. Specifically, we aim to increase our understanding of (1) which socio-emotional skills are particularly challenging, (2) which interventions are effective to enhance socio-emotional learning, (3) which barriers and facilitators in a higher education setting affect socio-emotional learning, (4) which teaching methods can enhance socio-emotional learning, all in students with cognitive learning difficulties in higher education. Finally, we aim to assess whether inclusive education of socio-emotional skills in higher education is feasible and preferred (5). To this end, we have integrated findings of a systematic review, focus groups and a survey.

The synthesized findings can be summarized in the following take home messages:

1. While important individual differences exist in socio-emotional abilities of students with cognitive learning difficulties, socio-emotional skills that are critical, yet particularly challenging to train in higher education students with cognitive learning difficulties are (a) communication of needs and assertiveness, (b) time management and planning, (c) analytical skills that require clear comprehension, and (d) intricate socio-emotional skills that require more basic socio-emotional skills and lots of practice.
2. In students with cognitive learning difficulties, interventions based on cognitive-behavioural therapy, other psychosocial interventions, and counseling, mentoring and tutoring are associated with the improvement of socio-emotional skills. Research investigating the effects of these interventions in students with cognitive learning difficulties on mental health and academic performance is too scarce, as is research on other interventions, such as mind-body awareness training.
3. The main barriers for socio-emotional learning in higher education students with cognitive learning difficulties are (a) the high pressure and demands of the higher education system for both students and staff, (b) the lack of awareness, knowledge and understanding of learning difficulties among staff and peers, and (c) insufficient, slow, and impersonal support and resources for learning difficulties.
4. Opportunities to facilitate socio-emotional learning in students with cognitive learning difficulties include (a) more occasions to practice socio-emotional skills, (b) a multitude of methods to learn the same skills, including technology-based or digital methods for self-awareness, self-management and responsible decision making, and arts- and music-based methods, for self-awareness and self-management, and (c) more personal education approaches such as face-to-face or blended learning in interactive small groups, and coaching, mentoring, or tutoring with a personal coach, mentor or tutor who creates a safe space for socio-emotional learning.
5. Overall, consensus exists that socio-emotional skills should be taught in an inclusive way, yet with consideration for a more personally tailored approach based on personal developmental needs and wishes, independent of learning difficulties.

Executive Summary (Greek)

Οι κοινωνικο-συναισθηματικές δεξιότητες είναι απαραίτητες σε όλα τα στάδια της ζωής για να ευδοκιμήσει και να ακμάσει το κάθε άτομο. Ειδικότερα, η τριτοβάθμια εκπαίδευση, συνοδεύεται από συγκεκριμένες προκλήσεις που απαιτούν κοινωνικο-συναισθηματικές δεξιότητες προκειμένου οι φοιτητές/ριες να αισθάνονται καλά και να τα πάνε καλά ακαδημαϊκώς. Η μετάβαση στην τριτοβάθμια εκπαίδευση περιλαμβάνει την έκθεση σε ένα άγνωστο και αβέβαιο περιβάλλον, με λιγότερη δομή από πριν, καθώς και την αναγκαιότητα για νέα κοινωνικά δίκτυα που πρέπει να δημιουργηθούν. Η αντιμετώπιση αυτών των αλλαγών είναι δύσκολη για κάθε φοιτητή/ρια, αλλά ιδιαίτερα για φοιτητές/ριες με γνωστικές μαθησιακές δυσκολίες, όπως δυσκολίες στην προσοχή, τη μνήμη, τη σκέψη, την κατανόηση ή τη γλώσσα. Επομένως, είναι ζωτικής σημασίας η κοινωνικο-συναισθηματική μάθηση για την ανάπτυξη κοινωνικο-συναισθηματικών δεξιοτήτων στην τριτοβάθμια εκπαίδευση να εφαρμόζεται με τέτοιο τρόπο ώστε να είναι αποτελεσματική για όλους τους φοιτητές/ριες, συμπεριλαμβανομένων αυτών με γνωστικές μαθησιακές δυσκολίες.

Ο στόχος της παρούσας έκθεσης είναι να συνθέσει στοιχεία με στόχο την καλύτερη κατανόηση του πώς μπορούμε να βελτιώσουμε την κοινωνικο-συναισθηματική μάθηση σε φοιτητές/ριες με γνωστικές μαθησιακές δυσκολίες στην τριτοβάθμια εκπαίδευση. Συγκεκριμένα, μέσα από την έκθεση, στοχεύουμε να κατανοήσουμε καλύτερα το (1) ποιες κοινωνικο-συναισθηματικές δεξιότητες είναι ιδιαίτερα απαιτητικές, (2) ποιες παρεμβάσεις είναι αποτελεσματικές για την ενίσχυση της κοινωνικο-συναισθηματικής μάθησης, (3) ποια εμπόδια και διευκολυντές σε ένα περιβάλλον τριτοβάθμιας εκπαίδευσης επηρεάζουν την συναισθηματική μάθηση, (4) ποιες μέθοδοι διδασκαλίας μπορούν να ενισχύσουν την κοινωνικο-συναισθηματική μάθηση, με κύρια επικέντρωση σε φοιτητές/ριες με γνωστικές μαθησιακές δυσκολίες στην τριτοβάθμια εκπαίδευση. Τέλος, στοχεύουμε να αξιολογήσουμε εάν η εφαρμογή συμπεριληπτικών προσεγγίσεων κοινωνικο-συναισθηματικής μάθησης στην τριτοβάθμια εκπαίδευση είναι εφικτή και προτιμώμενη (5). Για το σκοπό αυτό, έχουμε ενσωματώσει στη παρούσα έκθεση, τα ευρήματα μιας συστηματικής ανασκόπησης, ομάδων εστίασης και μιας έρευνας ερωτηματολογίου.

Τα ευρήματα μπορούν να συνοψιστούν στα ακόλουθα κύρια σημεία:

1. Ενώ υπάρχουν σημαντικές ατομικές διαφορές στις κοινωνικο-συναισθηματικές δεξιότητες των φοιτητών/ριών με γνωστικές μαθησιακές δυσκολίες, οι κοινωνικο-συναισθηματικές δεξιότητες που είναι κρίσιμες, αλλά ιδιαίτερα απαιτητικές για την εκπαίδευση φοιτητών τριτοβάθμιας εκπαίδευσης με γνωστικές μαθησιακές δυσκολίες είναι (α) η επικοινωνία των αναγκών και η διεκδίκηση, (β) διαχείριση και προγραμματισμός χρόνου, (γ) αναλυτικές δεξιότητες που απαιτούν σαφή κατανόηση και (δ) περίπλοκες κοινωνικο-συναισθηματικές δεξιότητες που απαιτούν περισσότερες βασικές κοινωνικο-συναισθηματικές δεξιότητες και πολλή εξάσκηση.
2. Οι παρεμβάσεις που βασίζονται στη γνωσιακή-συμπεριφορική θεραπεία, άλλες ψυχοκοινωνικές παρεμβάσεις και η συμβουλευτική, και η καθοδήγηση (mentoring and tutoring) συνδέονται με τη βελτίωση των κοινωνικο-συναισθηματικών δεξιοτήτων. Η διεξαγωγή έρευνας για τη διερεύνηση των επιπτώσεων αυτών των παρεμβάσεων στην ψυχική υγεία και τις ακαδημαϊκές επιδόσεις είναι πολύ σπάνια, όπως και η έρευνα για άλλες παρεμβάσεις, όπως η εκπαίδευση επίγνωσης νου-σώματος (mind-body awareness training).
3. Τα κύρια εμπόδια για την κοινωνικο-συναισθηματική μάθηση σε φοιτητές/ριες τριτοβάθμιας εκπαίδευσης με γνωστικές μαθησιακές δυσκολίες είναι (α) η υψηλή πίεση και οι απαιτήσεις του συστήματος τριτοβάθμιας εκπαίδευσης τόσο για τους φοιτητές/ριες όσο και για το προσωπικό, (β) η έλλειψη επίγνωσης, γνώσης και κατανόησης για τις μαθησιακές δυσκολίες τόσο από το προσωπικό, όσο και από συμφοιτητές/ριες, καθώς και (γ) η ανεπαρκής, αργή και απρόσωπη υποστήριξη και πόροι για τις θέματα που αφορούν μαθησιακές δυσκολίες.
4. Οι διευκολυντικοί παράγοντες της κοινωνικο-συναισθηματικής μάθησης σε φοιτητές/ριες με γνωστικές μαθησιακές δυσκολίες περιλαμβάνουν (α) περισσότερες ευκαιρίες εξάσκησης κοινωνικο-συναισθηματικών δεξιοτήτων, (β) πληθώρα μεθόδων εκμάθησης των ίδιων δεξιοτήτων, συμπεριλαμβανομένων μεθόδων που βασίζονται στην τεχνολογία ή ψηφιακών μεθόδων και αφορούν

την επίγνωση για τον εαυτό τους, την αυτοδιαχείριση και υπεύθυνη λήψη αποφάσεων και μέθοδοι που βασίζονται σε τέχνες και μουσική, για αυτογνωσία και αυτοδιαχείριση, και (γ) πιο ατομο-κεντρικές προσεγγίσεις εκπαίδευσης όπως η ατομική εκπαίδευση, η μικτή μάθηση σε διαδραστικές μικρές ομάδες και καθοδήγηση από ένα μέντορα ή διδάσκοντα/ουσα, οι οποίες προάγουν ένα ασφαλή χώρο για κοινωνικο-συναισθηματική μάθηση.

5. Συνολικά, υπάρχει συναίνεση ότι οι κοινωνικο-συναισθηματικές δεξιότητες θα πρέπει να διδάσκονται χωρίς αποκλεισμούς, αλλά λαμβάνοντας υπόψη μια πιο εξατομικευμένη προσέγγιση βασισμένη στις προσωπικές αναπτυξιακές ανάγκες και επιθυμίες, ανεξαρτήτως των μαθησιακών δυσκολιών.

Executive Summary (Dutch)

Sociaal-emotionele vaardigheden zijn essentieel in alle levensfasen om het goed te doen in het leven. Met name het hoger onderwijs kent specifieke uitdagingen die sociaal-emotionele vaardigheden vereisen om ervoor te zorgen dat studenten zich goed voelen en goed presteren. De transitie naar het hoger onderwijs betekent blootstelling aan een onbekende en onzekere omgeving, met minder structuur dan voorheen en nieuwe sociale netwerken die moeten worden opgebouwd. Omgaan met deze overgangen is moeilijk voor elke leerling, maar in het bijzonder voor leerlingen met cognitieve leermoeilijkheden, zoals moeilijkheden met aandacht, geheugen, denken, begrip of taal. Het is daarom van cruciaal belang dat sociaal-emotioneel leren, om sociaal-emotionele vaardigheden in het hoger onderwijs te ontwikkelen, op een zodanige manier wordt geïmplementeerd dat het effectief is voor alle studenten, ook voor studenten met cognitieve leermoeilijkheden.

Het doel van dit rapport is om kennis te bundelen en beter te begrijpen hoe we sociaal-emotioneel leren kunnen verbeteren bij studenten met cognitieve leermoeilijkheden in het hoger onderwijs. Concreet willen we beter bevatten (1) welke sociaal-emotionele vaardigheden bijzonder uitdagend zijn, (2) welke interventies effectief zijn om sociaal-emotioneel leren te verbeteren, (3) welke factoren sociaal-emotioneel leren belemmeren en bevorderen in het hoger onderwijs , (4) welke onderwijsmethoden sociaal-emotioneel leren kunnen verbeteren, dit alles bij studenten met cognitieve leermoeilijkheden in het hoger onderwijs. Ten slotte willen we nagaan of inclusief onderwijs van sociaal-emotionele vaardigheden in het hoger onderwijs haalbaar en wenselijk is (5). Hiervoor hebben we bevindingen van een systematische review, focusgroepen en een survey geïntegreerd.

De bevindingen kunnen worden samengevat in de volgende kernpunten.

1. Er bestaan belangrijke individuele verschillen in sociaal-emotionele bekwaamheid van studenten met cognitieve leermoeilijkheden. De volgende sociaal-emotionele vaardigheden zijn echter van cruciaal belang, maar bijzonder uitdagend om te trainen bij studenten met cognitieve leermoeilijkheden in het hoger onderwijs: (a) communicatie van behoeften en assertiviteit, (b) tijdmanagement en planning, (c) analytische vaardigheden die een duidelijk bevattingsvermogen vereisen, en (d) complexe sociaal-emotionele vaardigheden die sociaal-emotionele basisvaardigheden en veel oefening vereisen.
2. Interventies op basis van cognitieve gedragstherapie, andere psychosociale interventies en counseling, mentoring en tutoring bij studenten met cognitieve leermoeilijkheden gaan gepaard met verbetering van sociaal-emotionele vaardigheden. Onderzoek bij studenten met cognitieve leermoeilijkheden naar de effecten van deze interventies op mentale gezondheid en academische prestaties is schaars, net als onderzoek naar andere interventies, zoals mind-body awareness training.
3. De belangrijkste belemmeringen voor sociaal-emotioneel leren bij studenten in het hoger onderwijs met cognitieve leermoeilijkheden zijn (a) hoge druk en eisen van het hoger onderwijssysteem voor zowel studenten als personeel, (b) gebrek aan bewustzijn, kennis en begrip van leermoeilijkheden onder hoger onderwijs personeel en medestudenten, en (c) onvoldoende, trage en onpersoonlijke ondersteuning en middelen voor leermoeilijkheden.
4. Mogelijkheden om sociaal-emotioneel leren te bevorderen bij leerlingen met cognitieve leermoeilijkheden zijn onder meer (a) meer gelegenheden om sociaal-emotionele vaardigheden te oefenen, (b) een breed gamma aan methoden om dezelfde vaardigheden te leren, waaronder op technologie gebaseerde of digitale methoden voor zelfbewustzijn, zelfmanagement en verantwoorde besluitvorming, en op kunst en muziek gebaseerde methoden, voor zelfbewustzijn en zelfmanagement, en (c) meer persoonlijke onderwijsbenaderingen zoals face-to-face of blended learning in interactieve kleine groepen, en coaching, mentoring of tutoring met een persoonlijke coach, mentor of tutor die een veilige ruimte creëert voor sociaal-emotioneel leren.
5. Over het algemeen bestaat er consensus dat sociaal-emotionele vaardigheden op een inclusieve manier moeten worden aangeleerd, maar met aandacht voor een meer persoonlijke aanpak op basis van persoonlijke ontwikkelbehoeften en -wensen, onafhankelijk van leerproblemen.

Executive Summary (Hungarian)

A szocio-emocionális készségek az élet minden szakaszában elengedhetetlenek a boldoguláshoz és a kibontakozáshoz. A felsőoktatás különösen olyan sajátos kihívásokkal jár, amelyek társas-érzelmi készségeket igényelnek ahhoz, hogy a hallgatók jól érezzék magukat és jól teljesítsenek. A felsőoktatásba való átmenet egy ismeretlen és bizonytalan környezetnek való kitettséggel jár, ahol a korábbinál kevesebb struktúra van, és új szociális hálózatokat kell kiépíteni. Az ezekkel az átmenetekkel való megbirkózás minden diák számára nehéz, de különösen a tanulási nehézségekkel küzdő diákok számára, például a figyelem, a memória, a gondolkodás, a megértés vagy a nyelvi nehézségek miatt. Ezért kulcsfontosságú, hogy a felsőoktatásban a szocio-emocionális készségek fejlesztését célzó szocio-emocionális tanulást úgy valósítsák meg, hogy az minden hallgató, köztük a tanulási nehézségekkel küzdő hallgatók számára is hatékony legyen.

E jelentés célja, hogy az eredmények szintézisével jobban megértsük, hogyan javíthatjuk a tanulási nehézségekkel küzdő hallgatók szocio-emocionális tanulását a felsőoktatásban. Konkrétabban azt szeretnénk jobban megérteni, hogy (1) mely szocio-emocionális készségek jelentenek különösen nagy kihívást, (2) mely beavatkozások hatékonyak a szocio-emocionális tanulás területén, (3) milyen akadályok és facilitátorok befolyásolják a felsőoktatási környezetben a szocio-emocionális tanulást, (4) mely tanítási módszerek képesek javítani a szocio-emocionális tanulást, mindezt a tanulási nehézségekkel küzdő felsőoktatási hallgatók esetében. Végül pedig célunk annak felmérése, hogy a szocio-emocionális tanulás inkluzív oktatása a felsőoktatásban megvalósítható és preferálandó-e (5). E célból egy szisztematikus szakirodalmi áttekintés, fókuszcsoportok és egy kérdőíves felmérés eredményeit integráltuk.

A szintetizált eredményeket a következőkben oglaltuk össze.

1. Bár a tanulási nehézségekkel küzdő hallgatók szocio-emocionális képességeiben jelentős egyéni különbségek találhatók, a tanulási nehézségekkel küzdő felsőoktatási hallgatóknál kritikus, különösen nagy kihívást jelentő szocio-emocionális készségek általánosan a következők: a) az igények kommunikációja és az asszertivitás, b) az időgazdálkodás és a tervezés, c) a világos megértést igénylő elemző készségek és d) a komplexebb szocio-emocionális készségek, amelyek alapvetőbb szocio-emocionális készségeket és sok gyakorlást igényelnek.
2. A kognitív-viselkedésterápián alapuló beavatkozások, más pszichoszociális beavatkozások, valamint a tanácsadás, mentorálás és korrepetálás összefüggésbe hozható a szocio-emocionális készségek javulásával. Az e beavatkozások mentális egészségre és iskolai teljesítményre gyakorolt hatását vizsgáló kutatások hiányosak, csakúgy, mint az egyéb beavatkozásokra, például a testi-lelki tudatosságra nevelésre vonatkozó kutatások.
3. A tanulási nehézségekkel küzdő felsőoktatási hallgatók szocio-emocionális tanulásának fő akadályai a következők: a) a felsőoktatási rendszer nagy nyomása és követelményei mind a hallgatók, mind a rendszerben dolgozók számára, b) a tanulási nehézségekkel kapcsolatos tudatosság, ismeretek és megértés hiánya a dolgozók és a társak körében, valamint c) a tanulási nehézségekkel kapcsolatos elégtelen, lassú és személytelen támogatás és erőforrások.
4. A tanulási nehézségekkel küzdő hallgatók szocio-emocionális tanulásának elősegítésére a lehetőségek közé tartozik (a) több alkalom a szocio-emocionális készségek gyakorlására, (b) az adott készségek elsajátítására szolgáló módszerek szélesebb skálája, beleértve a technológiai alapú vagy digitális módszereket az önismeret, az önmenedzselés és a felelős döntéshozatal érdekében, valamint művészeti és zenei alapú módszerek az önismeret és az önmenedzselés érdekében, és c) személyesebb oktatási megközelítés, mint például az egyéni, vagy vegyes tanulás interaktív kiscsoportokban, valamint coaching, mentorálás vagy korrepetálás egy személyes coach, mentor vagy tutor segítségével, aki biztonságos teret teremt a szocio-emocionális tanuláshoz.
5. Összességében egyetértés van abban, hogy a szocio-emocionális készségeket inkluzív módon kell tanítani, de a tanulási nehézségektől független, személyre szabottabb, a személyes fejlődési szükségleteken és igényeken alapuló megközelítés figyelembevételével.

Bridging the science-practice gap

Why evidence synthesis, and how?

Socio-emotional learning (SEL) is broadly defined as "the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions" (Collaboration for Academic, Social and Emotional Learning (CASEL), https://casel.org/fundamentals-of-sel/). Acquiring socio-emotional skills through SEL in higher education (HE) is essential for students to attain their academic achievements, to safeguard their health and wellbeing, and to thrive in their future careers and lives.

While socio-emotional skills are critical in all stages of life, SEL is particularly important in HE, since socio-emotional skills are essential to cope with specific challenges in HE. The transition to HE comes with a new and unfamiliar environment (e.g. new lecturers, peers, academic procedures, education practices, places to live), and considerable uncertainty, which require significant flexibility and adaptability. This new environment also requires interpersonal skills to build and maintain new social networks. Additionally, HE requires more planning and organization, as it entails increasing autonomy, increasing amounts of information to process, and many activities to coordinate, e.g. academic activities (including lectures, work groups, assignments, exams) and extra-curricular activities that benefit health and wellbeing. All this may induce significant stress and anxiety, requiring appropriate stress management and emotion regulation skills.

While these activities are challenging for most students, they are even more demanding for students with cognitive learning difficulties (LD), such as difficulties in attention, memory, thinking, understanding or language. Therefore, it is vital that HE initiatives for SEL benefit all students, including students with cognitive LD.

Important evidence exists on the effectiveness of psychological interventions in HE students with cognitive LD. For example, studies have investigated the effectiveness of cognitive behavioural therapy, other psychosocial interventions and mind-body interventions in HE students with cognitive LD to improve socio-emotional skills, mental health, or academic performance. While these findings provide essential information on effective mechanisms and processes to improve socio-emotional skills in students with cognitive LD, very few of these interventions are embedded in education practices. Hence, the question remains how we can integrate mechanisms and processes effective for SEL in education practices in HE such that they benefit all students, including students with cognitive LD.

Therefore, the aim of this evidence synthesis is to gather qualitative and quantitative evidence concerning socio-emotional learning in HE students with cognitive LD, to better understand what enables, facilitates and supports SEL in HE students with LD, and which factors make it more difficult and challenging.

To this end, we will synthesize evidence by means of:

(A) a systematic review,
(B) comparative focus groups including relevant stakeholders in four European countries (Cyprus, Greece, Hungary, and the Netherlands), and
(C) a crowdsourced survey in students with LD.

These three methods will provide complementary evidence on the following research questions.

1. Which socio-emotional skills are particularly challenging to train in HE students with cognitive LD? (B, C)

2. Which interventions are effective to enhance socio-emotional skills, mental health and academic performance in HE students with cognitive LD? (A)

3. What are facilitators and barriers of socio-emotional learning in students with cognitive LD in a HE setting? (B, C)

4. Which education practices are helpful and feasible to enhance socio-emotional learning in HE students with cognitive LD? (B, C)

5. Should socio-emotional skills in HE be taught in an inclusive way? (B, C)

Altogether, the integrated findings resulting from these three methods will help us better understand how to increase SEL in HE students with cognitive LD. Below, evidence from each method will be systematically discussed. Finally, integrated conclusions will be formulated.

Systematic review

1. Aim

A systematic review was conducted to summarize the existing literature on the effectiveness of interventions for SEL in students with cognitive LD in HE.

The primary aim was to gain insight into the main research question:
Are interventions for SEL effective in improving socio-emotional skills, mental health, and academic performance in HE students with cognitive LD?

In addition, the following complementary research questions were formulated:

1. Which SEL intervention components have been studied most in HE students with cognitive LD?
2. Which SEL intervention components are most effective in improving socio-emotional skills, mental health, and academic performance in HE students with cognitive LD?
3. Which cognitive LD have been studied most in research on SEL in HE?
4. Which outcomes (e.g. socio-emotional skills, mental health, academic performance) have been studied most in research on SEL in HE students with cognitive LD?
5. For which intervention components and outcomes exists a substantial research gap in research on SEL in HE students with cognitive LD?

The literature identified in the current systematic review will be summarized in a subsequent meta-analysis (to be reported in a later stage).

2. Methods

2.1. Protocol and registration

The review protocol was registered in Prospero (CRD42022327835: Systematic review and meta-analysis on the efficacy of socio-emotional learning interventions in higher education students with learning difficulties).

2.2. Eligibility criteria

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

2.2.1. Populations

Studies investigating HE students with cognitive LD were included. This included university, college and vocational students with the following disorders:

- SpLDs (Specific Learning Difficulties): Dyslexia, Dyscalculia, Dyspraxia, Dysgraphia, Dysnomia
- Attention-Deficit (Hyperactivity) Disorder (AD(H)D)
- Specific Language Impairment (SLI)
- Autism Spectrum Disorder (ASD)

Studies investigating students with other disabilities (e.g. physical disabilities, socio-emotional disabilities) were excluded.

Although ASD is not primarily a cognitive LD, important cognitive mechanisms are involved in ASD that are associated with ASD-specific socio-emotional difficulties. Because the informal search resulted in a

high number of ASD studies, we included ASD in the inclusion criteria. However, we present the results for ASD separately from those for other cognitive LDs.

2.2.2. Interventions

Because our research aims to provide a complete overview of interventions for SEL, studies investigating any intervention, training or program, either integrated (curricular) or parallel (extracurricular) to the traditional HE curriculum were included. These included, but were not limited to, studies investigating psychoeducation, skills-oriented training, coaching and counseling programs, psychosocial interventions and alternative programs (e.g. art or music programs). Studies investigating an intervention that did not possess a clear SEL component were only included given that a SEL outcome was measured.

2.2.3. 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 an intervention.

2.2.4. Outcomes

The included outcomes involved socio-emotional skills, academic performance and mental health. Socio-emotional skills were defined according to the well-established CASEL framework (https://casel.org/fundamentals-of-sel/). CASEL defines five areas of competence within socio-emotional learning: self-awareness, self-management, social awareness, relationship skills, and responsible decision making. This way, a broad range of socio-emotional skills related to the five areas of competence were included as outcomes. Furthermore, outcomes of academic performance (e.g. Grade Point Average, GPA) and mental health (e.g. anxiety or depression) were included. Included outcomes could be either self-perceptions, perceived by others or objective measurements.

2.2.5. 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.

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. Meta-analysis and systematic reviews have been excluded from the final set of articles but saved for a future reference check.

2.3. Information sources

The main search was performed in the Elsevier/Scopus database. Following this initial search, the search was extended to the following databases: Web of Science, ERIC, PsychINFO, CINAHL, EBSCO/Teacher Reference Center and Google Scholar.

2.4. Search

For the initial Elsevier/Scopus database search, the following search strategy was used:

(TITLE-ABS-KEY ((training* OR program* OR intervention* OR learning* OR elearning*))) AND (TITLE-ABS-KEY (((universit* OR college* OR "higher educat*" OR academi*) W/3 student*))) AND (TITLE-ABS-KEY (("special educational need*" OR "special education need*" OR "attention deficit*" OR hyperactiv* OR adhd* OR dyslexi* OR dyscalcul* OR dyspraxi* OR dysnom* OR autis* OR asperger* OR neurodiver* OR "neuro diver*" OR ((learning OR

read* OR cognit* OR language OR attention) W/3 (problem* OR difficult* OR disabil* OR disorder* OR impair* OR capacit* OR incapacit*)))))

No restrictions were set on the publication period. For the additional databases, database specific language was used to execute the search based on the search strategy presented above. For the EBSCO databases ERIC, PsychINFO, CINAHL and Teacher Reference Center, limiters were set to Academic Journals. No specific search was performed to track unpublished studies.

2.5. Study selection

Study selection was performed based on in- and exclusion criteria as outlined in the eligibility criteria. Two reviewers (RP and MP/TZG) independently, and blind to each other's decisions, screened all records, first based on title and abstract only, and afterwards based on full text. Disagreements in any of these two stages were solved by discussions with a third reviewer (EV).

2.6. 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 TZG), and moderated by a third reviewer (EV).

2.7. Data items

For this report, full articles accessible freely or by licences of VUA were included.

3. Results

3.1. Study selection

The PRISMA flow diagram illustrates the number of included studies at each stage of study selection (Figure 1). A total of 39 studies could be deemed eligible for inclusion according to the eligibility criteria defined above. Of these 39 studies, further investigation identified one study with duplicate data and four studies from which no results could be extracted due to a lack of reported statistics. Therefore, the extracted findings for the systematic review originate from 34 studies.

3.2. Study characteristics

In total, 2467 participants took part in the included studies (mean(n) = 65.16, median(n) = 36.5, min(n) = 8, max(n) = 450), from which 182 reported findings could be extracted.

The main study characteristics and summary of the studied interventions can be found in Table 1. Table 2 provides information on the extracted findings per outcome.

3.2.1. Populations

For all studies, the type of LD studied can be found in Table 1. The majority of included studies (N = 20) studied an ADHD population. Ten studies specifically investigated a population with ASD. The remainder of the studies (N = 9) either did not specify the LD for their study population or included a mix of participants with different LDs in their study. In the synthesis of results (Tables 6 to 8), results are split between studies with an LD population other than ASD (N studies = 29, N findings = 157) and the studies specifically studying an ASD population (N studies = 10, N findings = 25).

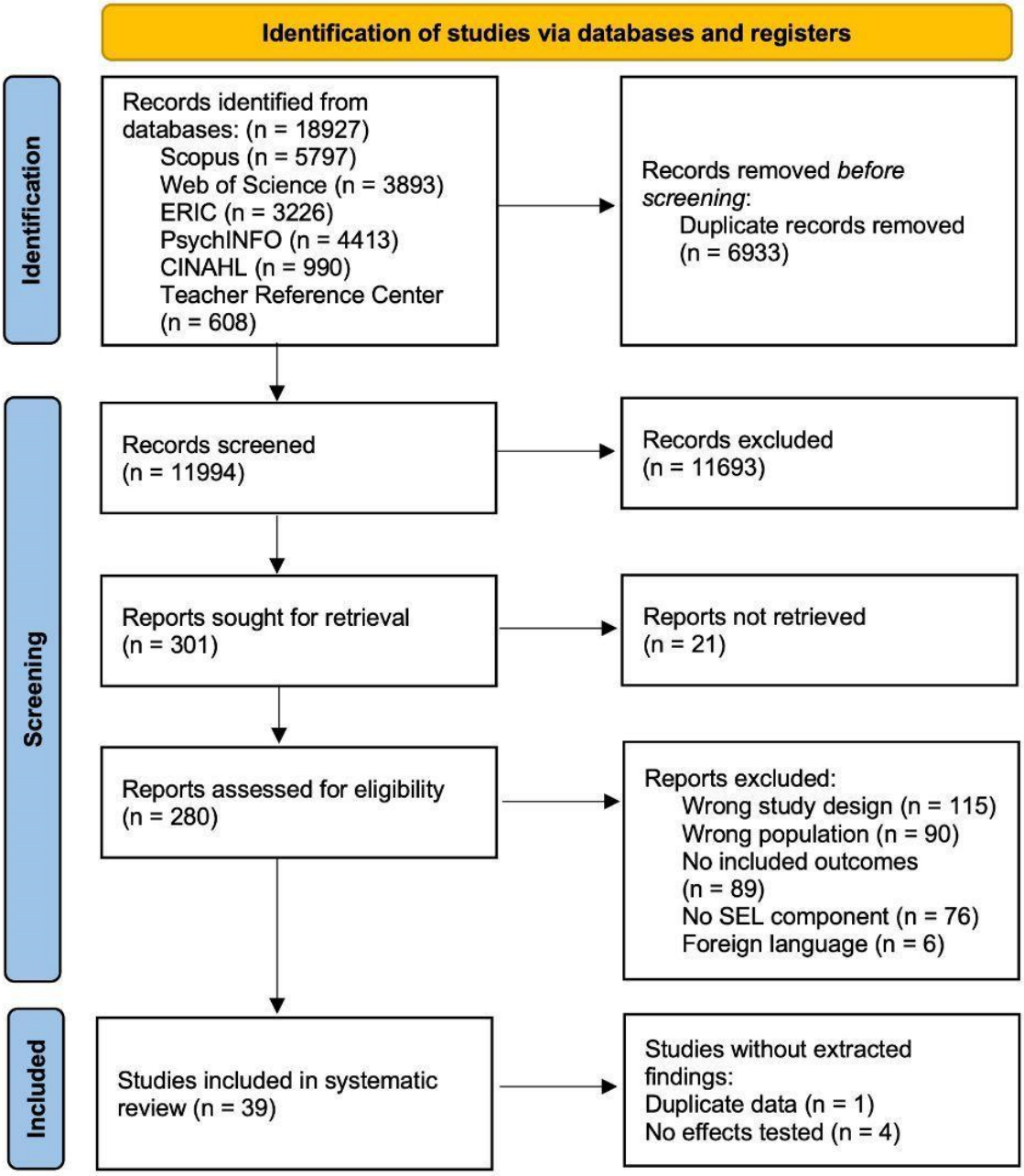


Figure 1. PRISMA flow diagram

Table 1.
Overview of included studies and study and intervention characteristics.

Nr.	Authors	Year	LD	N	Intervention name	Main intervention component	Additional intervention component	Group or individual
1	Nicholas et al.	2005	LD	36	Structured writing strategy training	Learning strategies		Group
2	Harrison et al.	2012	LD	450	Learning Opportunities Task Force (LOTF) program	Non-CBT psychosocial intervention	Coaching/mentoring/tutoring	Group and individual
3	Field et al.	2013	ADHD	160	Coaching intervention	Coaching/mentoring/tutoring		Individual
4	Mytkowicz et al.	2014	LD	48	Strategic learning course	Learning strategies	Coaching/mentoring/tutoring	Group and individual
5	Fleming et al.	2015	ADHD	33	Dialectical Behavior Therapy (DBT) Group skills training	CBT-based intervention	Mind-body awareness training	Group and individual
6	LaCount et al.	2015	ADHD	17	ADHD CBT treatment protocol	CBT-based intervention		Group and individual
7	Rando et al.	2016	ASD	11	Raiders on the Autism Spectrum Excelling (RASE) transition program	Coaching/mentoring/tutoring		Group and individual
8	Siew et al.	2017	ASD	10	Curtin Specialist Mentoring Program (CSMP)	Coaching/mentoring/tutoring		Group and individual
9	Ncube et al.	2019	ASD	23	The Autism Mentorship Program (AMP)	Coaching/mentoring/tutoring		Group and individual
10	Van der Oord et al.	2020	ADHD	58	Cognitive Behavioral Planning Intervention	CBT-based intervention		Individual
11	Trevisan et al.	2021	ASD	19	Autism Mentorship Initiative (AMI)	Coaching/mentoring/tutoring		Group and individual
12	Butler	1998	LD	34	Strategic Content Learning (SCL)	Learning strategies	Coaching/mentoring/tutoring	Group and individual
13	Allsopp et al.	2005	LD	46	Individualized Course-Specific Strategy Instruction	Learning strategies		Individual

14	Reed et al.	2009	LD	27	Academic learning success course	Non-CBT psychosocial intervention		Group and individual
15	Reed et al.	2011						
16	DuPaul et al.	2012	ADHD	24	Pharmacological intervention: Lisdexamfetamine Dimesylate (LDX).	Other		Individual
17	Mawjee et al.	2015	ADHD	97	Cogmed Working Memory training	Other	Coaching/mentoring/tutoring	Group and individual
18	White et al.	2016	ASD	8	Brain Computer Interface for ASD (BCI-ASD) & The College and Living Success (CLS) program	Mind-body awareness training	VR social interaction training	Individual
19	Hotez et al.	2018	ASD	10	Summer Transition Program 2 (STP2)	Coaching/mentoring/tutoring		Group and individual
20	Kreider et al.	2018	LD	52	Comprehensive Support for STEM Students with Learning Disabilities (CS3LD).	Coaching/mentoring/tutoring		Group and individual
21	LaCount et al.	2018	ADHD	37	Organization, time management, and planning (OTMP) skills training	CBT-based intervention		Group
22	Gabriely et al.	2020	LD	71	Mindfulness based stress reduction (MBSR) & Device-guided breathing (DGB)	Mind-body awareness training		Group and individual
23	Knouse et al.	2020	ADHD	58	Self-regulated studying with retrieval practice	Learning strategies		Individual
24	Converse et al.	2020	ADHD	21	Tai chi training	Mind-body awareness training		Group
25	Harris et al.	2021	ADHD	11	Neurofeedback training	Mind-body awareness training		Individual
26	White et al.	2021	ASD	35	The Stepped Transition in Education Program for Students with ASD (STEPS)	CBT-based intervention		Group and individual
27	Capriola-Hall et al.	2021	ASD	32	The Stepped Transition in Education Program for Students with ASD (STEPS)	CBT-based intervention		Group and individual
28	Shaikh	2017	ADHD	54	Interpersonal group therapy	Non-CBT psychosocial intervention	Interpersonal group therapy intervention	Group and individual
29	Gu et al.	2018	ADHD	54	Individualized Mindfulness-Based Cognitive Therapy (MBCT)	Mind-body awareness training		Individual
30	Hillier et al.	2017	ASD	52	Support groups for university students with ASD	Coaching/mentoring/tutoring		Group
31	Scheithauer & Kelley	2017	ADHD	41	Self-monitoring and study skills intervention	Non-CBT psychosocial intervention		Individual

32	Prevatt & Yelland	2015	ADHD	148	ADHD coaching program	CBT-based intervention	Coaching/mentoring/tutoring	Individual
33	Anastopoulos & King	2015	ADHD	43	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Coaching/mentoring/tutoring	Group and individual
34	Anastopoulos et al.	2020	ADHD	88	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Coaching/mentoring/tutoring	Group and individual
35	Rowe et al.	2020	ASD	20	Transition to Healthiness, Resourcefulness, Independence, Vocation, and Education (THRIVE) program	Coaching/mentoring/tutoring		Group and individual
36	Solanto & Scheres	2021	ADHD	18	Adult CBT program	CBT-based intervention		Group
37	Eddy et al.	2021	ADHD	250	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Coaching/mentoring/tutoring	Group and individual
38	Anastopoulos et al.	2021	ADHD	250	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Coaching/mentoring/tutoring	Group and individual
39	Hartung et al.	2022	ADHD	30	Organizational, time management, and planning (OTMP) skills CBT therapy	CBT-based intervention		Group and individual

Table 2.
Overview of extracted findings per study.

Nr.	Intervention name	Main intervention component	Outcomes	Outcome category	Result
1	Structured writing strategy training	Learning strategies	Writing Self-Efficacy Scale	SE SKILLS	NO DIFFERENCE
2	Learning Opportunities Task Force (LOTF) program	Non-CBT psychosocial intervention	Aspect affected by LD: Social relationships	SE SKILLS	NO DIFFERENCE
			Aspect affected by LD: Social relationships	SE SKILLS	OPPOSING INTERVENTION
			Ability to advocate for accommodations	SE SKILLS	FAVOURING INTERVENTION
3	Coaching intervention	Coaching/ mentoring/ tutoring	LASSI - total score	SE SKILLS	FAVOURING INTERVENTION
4	Strategic learning course	Learning strategies	Metacognitive Awareness: regulation of cognition	SE SKILLS	FAVOURING INTERVENTION
			GPA	ACADEMIC PERFORMANCE	NO DIFFERENCE
5	Dialectical Behavior Therapy (DBT) group skills training	CBT-based intervention	Anxiety and depressive symptoms	MENTAL HEALTH	NO DIFFERENCE
			Academic performance	ACADEMIC PERFORMANCE	NO DIFFERENCE
			Mindfulness	SE SKILLS	FAVOURING INTERVENTION
6	ADHD CBT treatment protocol	CBT-based intervention	Impairment subscale: self-concept	SE SKILLS	NO DIFFERENCE
			Impairment subscale: life-skill	SE SKILLS	NO DIFFERENCE
8	Curtin Specialist Mentoring Program (CSMP)	Coaching/ mentoring/ tutoring	Anxiety	MENTAL HEALTH	NO DIFFERENCE
			Social relationships	SE SKILLS	FAVOURING INTERVENTION
			State communication apprehension	SE SKILLS	NO DIFFERENCE
			Communication competence	SE SKILLS	NO DIFFERENCE
			Communication apprehension	SE SKILLS	FAVOURING INTERVENTION
9	The Autism Mentorship Program (AMP)	Coaching/ mentoring/ tutoring	Social Support	SE SKILLS	NO DIFFERENCE
			Friendships	SE SKILLS	NO DIFFERENCE
10	Cognitive Behavioral Planning Intervention	CBT-based intervention	Information processing (LASSI)	SE SKILLS	NO DIFFERENCE
			Selecting main ideas (LASSI)	SE SKILLS	NO DIFFERENCE
			Test strategies (LASSI)	SE SKILLS	FAVOURING INTERVENTION
			Test anxiety (LASSI)	MENTAL HEALTH	NO DIFFERENCE
			Motivation (LASSI)	SE SKILLS	FAVOURING

					INTERVENTION
			Attitude (LASSI)	SE SKILLS	FAVOURING INTERVENTION
			Time management (LASSI)	SE SKILLS	FAVOURING INTERVENTION
			Concentration (LASSI)	SE SKILLS	NO DIFFERENCE
			Self-testing (LASSI)	SE SKILLS	NO DIFFERENCE
			Study techniques (LASSI)	SE SKILLS	NO DIFFERENCE
			Symptoms of depression	MENTAL HEALTH	FAVOURING INTERVENTION
			Planning	SE SKILLS	FAVOURING INTERVENTION
11	Autism Mentorship Initiative (AMI)	Coaching/ mentoring/ tutoring	College adjustment	SE SKILLS	FAVOURING INTERVENTION
			GPA	ACADEMIC PERFORMANCE	NO DIFFERENCE
12	Strategic Content Learning (SCL)	Learning strategies	Metacognitive questionnaire: average rating	SE SKILLS	FAVOURING INTERVENTION
			Self-Efficacy Questionnaire: Total	SE SKILLS	FAVOURING INTERVENTION
13	Individualized Course-Specific Strategy Instruction	Learning strategies	GPA	ACADEMIC PERFORMANCE	FAVOURING INTERVENTION
14	Academic learning success course	Non-CBT psychosocial intervention	The self-control schedule	SE SKILLS	NO DIFFERENCE
			The Academic Resourcefulness Inventory	SE SKILLS	FAVOURING INTERVENTION
			The Academic Self-Efficacy Scale	SE SKILLS	FAVOURING INTERVENTION
			State anxiety	MENTAL HEALTH	NO DIFFERENCE
			Trait anxiety	MENTAL HEALTH	NO DIFFERENCE
			GPA	ACADEMIC PERFORMANCE	FAVOURING INTERVENTION
16	Pharmacological intervention: Lisdexamfetamine Dimesylate (LDX).	Other	BRIEF-A Inhibition	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A Shift	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A emotional control	SE SKILLS	NO DIFFERENCE
			BRIEF-A Self-Monitor	SE SKILLS	NO DIFFERENCE
			BRIEF-A Initiate	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A Working memory	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A Plan/Organization	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A Task Management	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A Organization of	SE SKILLS	FAVOURING

			materials		INTERVENTION
			BRIEF-A Behavior Regulation Index	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A Metacognition	SE SKILLS	FAVOURING INTERVENTION
			BRIEF-A General Executive Composite score	SE SKILLS	FAVOURING INTERVENTION
			SCL-90-R Somatization	MENTAL HEALTH	NO DIFFERENCE
			SCL-90-R Obsessive-Compulsive	MENTAL HEALTH	FAVOURING INTERVENTION
			SCL-90-R Interpersonal sensitivity	MENTAL HEALTH	FAVOURING INTERVENTION
			SCL-90-R Depression	MENTAL HEALTH	FAVOURING INTERVENTION
			SCL-90-R Anxiety	MENTAL HEALTH	NO DIFFERENCE
			SCL-90-R Hostility	MENTAL HEALTH	FAVOURING INTERVENTION
			SCL-90-R Phobic Anxiety	MENTAL HEALTH	NO DIFFERENCE
			SCL-90-R Paranoid Ideation	MENTAL HEALTH	FAVOURING INTERVENTION
			SCL-90-R Psychoticism	MENTAL HEALTH	FAVOURING INTERVENTION
			Study and organizational skills	SE SKILLS	FAVOURING INTERVENTION
17	Cogmed Working Memory training	Other	Perseverance of effort	SE SKILLS	NO DIFFERENCE
18	Brain Computer Interface for ASD (BCI-ASD) & The College and Living Success (CLS) program	Mind-body awareness training	BDEFS - total	SE SKILLS	NO DIFFERENCE
			SACQ - total	SE SKILLS	NO DIFFERENCE
			BDEFS - total	SE SKILLS	NO DIFFERENCE
			SACQ - total	SE SKILLS	NO DIFFERENCE
19	Summer Transition Program 2 (STP2)	Coaching/ mentoring/ tutoring	Self-efficacy	SE SKILLS	NO DIFFERENCE
20	Comprehensive Support for STEM Students with Learning Disabilities (CS3LD).	Coaching/ mentoring/ tutoring	Academic self-confidence	SE SKILLS	FAVOURING INTERVENTION
			Academic and social integration	SE SKILLS	FAVOURING INTERVENTION
			Engagement in personal growth	SE SKILLS	NO DIFFERENCE
			I organize tasks and manage time to complete tasks by deadlines (34)	SE SKILLS	FAVOURING INTERVENTION
			I respond promptly to phone calls, emails, or letters (34)	SE SKILLS	FAVOURING INTERVENTION
			I know my strengths and limitations in the learning process (31)	SE SKILLS	FAVOURING INTERVENTION

			I know what accommodations I need to bypass my limitations (33)	SE SKILLS	FAVOURING INTERVENTION
			I can advocate for my specific LD needs with my instructors (33)	SE SKILLS	FAVOURING INTERVENTION
			I know about supports at University of Florida specific to LD students (32)	SE SKILLS	FAVOURING INTERVENTION
			I know how to be clear in requests and be prepared with explanations regarding my LD (33)	SE SKILLS	FAVOURING INTERVENTION
			I know how to communicate about my LD with others (33)	SE SKILLS	FAVOURING INTERVENTION
			I prepare ahead for communications about my LD with others (33)	SE SKILLS	FAVOURING INTERVENTION
			I can ask for help from my friends when faced with limitations (33)	SE SKILLS	FAVOURING INTERVENTION
			I have sought up-to-date information about my LD by talking to specialists and doing my own research (33)	SE SKILLS	FAVOURING INTERVENTION
21	Organization, time management, and planning (OTMP) skills training	CBT-based intervention	Academic impairment	SE SKILLS	FAVOURING INTERVENTION
			Course grades	ACADEMIC PERFORMANCE	NO DIFFERENCE
			OTMP Skills Utilization	SE SKILLS	FAVOURING INTERVENTION
22	Mindfulness based stress reduction (MBSR) & Device-guided breathing (DGB)	Mind-body awareness training	Mindfulness	SE SKILLS	FAVOURING INTERVENTION
			Mindfulness	SE SKILLS	NO DIFFERENCE
23	Self-regulated studying with retrieval practice	Learning strategies	Interest	SE SKILLS	NO DIFFERENCE
			Motivation	SE SKILLS	NO DIFFERENCE
			Effort	SE SKILLS	NO DIFFERENCE
25	Neurofeedback	Mind-body awareness training	The beck depression inventory	MENTAL HEALTH	FAVOURING INTERVENTION
			The beck anxiety inventory	MENTAL HEALTH	FAVOURING INTERVENTION
			The self-efficacy for learning form-abridged	SE SKILLS	FAVOURING INTERVENTION
27	The Stepped Transition in Education Program for Students with ASD (STEPS)	CBT-based intervention	Depression	MENTAL HEALTH	NO DIFFERENCE
			Anxiety	MENTAL HEALTH	FAVOURING INTERVENTION

			Loneliness	MENTAL HEALTH	NO DIFFERENCE
28	Interpersonal group therapy	Non-CBT psychosocial intervention	Global self-esteem (SES)	SE SKILLS	FAVOURING INTERVENTION
			Social self-esteem (TSBI)	SE SKILLS	FAVOURING INTERVENTION
			Psychosocial competence (PC)	SE SKILLS	FAVOURING INTERVENTION
			Perspective taking (PT)	SE SKILLS	FAVOURING INTERVENTION
			Interpersonal Perceptiveness (IP)	SE SKILLS	FAVOURING INTERVENTION
			Interpersonal Attentiveness (IA)	SE SKILLS	NO DIFFERENCE
			Interpersonal Responsiveness (IR)	SE SKILLS	FAVOURING INTERVENTION
			Social Control (SC)	SE SKILLS	FAVOURING INTERVENTION
			Emotional maturity (EMRF)	SE SKILLS	FAVOURING INTERVENTION
29	Individualized Mindfulness-Based Cognitive Therapy (MBCT)	Mind-body awareness training	Anxiety (BAI)	MENTAL HEALTH	FAVOURING INTERVENTION
			Depression (BDI-2)	MENTAL HEALTH	FAVOURING INTERVENTION
			GPA	ACADEMIC PERFORMANCE	NO DIFFERENCE
			Mindfulness (MAAS)	SE SKILLS	FAVOURING INTERVENTION
30	Support groups for university students with ASD	Coaching/ mentoring/ tutoring	Self-esteem	SE SKILLS	FAVOURING INTERVENTION
			Loneliness	MENTAL HEALTH	FAVOURING INTERVENTION
			Depression	MENTAL HEALTH	NO DIFFERENCE
			General Anxiety	MENTAL HEALTH	FAVOURING INTERVENTION
			Social Anxiety	MENTAL HEALTH	NO DIFFERENCE
			Academic Distress	MENTAL HEALTH	NO DIFFERENCE
31	Self-monitoring and study skills intervention	Non-CBT psychosocial intervention	Goal progress (GAS)	SE SKILLS	FAVOURING INTERVENTION
			GPA	ACADEMIC PERFORMANCE	FAVOURING INTERVENTION
			Organization	SE SKILLS	NO DIFFERENCE
32	ADHD coaching program	CBT-based intervention	Anxiety	MENTAL HEALTH	FAVOURING INTERVENTION
			Attention	SE SKILLS	FAVOURING INTERVENTION
			Concentration	SE SKILLS	FAVOURING

					INTERVENTION
			Information Processing	SE SKILLS	FAVOURING INTERVENTION
			Motivation	SE SKILLS	FAVOURING INTERVENTION
			Self-Testing	SE SKILLS	FAVOURING INTERVENTION
			Selecting Main Ideas	SE SKILLS	FAVOURING INTERVENTION
			Study Aids	SE SKILLS	FAVOURING INTERVENTION
			Time Management	SE SKILLS	FAVOURING INTERVENTION
			Test Strategies	SE SKILLS	FAVOURING INTERVENTION
			Total progress (Total OQ-45)	SE SKILLS	FAVOURING INTERVENTION
			Self-esteem	SE SKILLS	FAVOURING INTERVENTION
33	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Organization and time management	SE SKILLS	FAVOURING INTERVENTION
			Maladaptive thinking (CRT for ADHD)	MENTAL HEALTH	FAVOURING INTERVENTION
			Metacognition	SE SKILLS	FAVOURING INTERVENTION
			Behavioural Regulation	SE SKILLS	FAVOURING INTERVENTION
			Global executive functioning	SE SKILLS	FAVOURING INTERVENTION
			Depression (BDI-II)	MENTAL HEALTH	NO DIFFERENCE
			Anxiety (BAI)	MENTAL HEALTH	NO DIFFERENCE
			GPA	ACADEMIC PERFORMANCE	NO DIFFERENCE
34	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Behavioural Regulation	SE SKILLS	FAVOURING INTERVENTION
			Metacognition	SE SKILLS	FAVOURING INTERVENTION
			Anxiety	MENTAL HEALTH	FAVOURING INTERVENTION
			Depression	MENTAL HEALTH	FAVOURING INTERVENTION
			Credit hours attempted	ACADEMIC PERFORMANCE	FAVOURING INTERVENTION
			Credit hours earned	ACADEMIC PERFORMANCE	FAVOURING INTERVENTION
			Information Processing	SE SKILLS	FAVOURING INTERVENTION
			Self-Testing	SE SKILLS	FAVOURING

					INTERVENTION
			Study Aids	SE SKILLS	FAVOURING INTERVENTION
			Attitude	SE SKILLS	FAVOURING INTERVENTION
			Motivation	SE SKILLS	NO DIFFERENCE
36	Adult CBT program	CBT-based intervention	Self-management to time (percentile)	SE SKILLS	FAVOURING INTERVENTION
			Organization (percentile)	SE SKILLS	FAVOURING INTERVENTION
			Motivation (percentile)	SE SKILLS	NO DIFFERENCE
			Total executive function (percentile)	SE SKILLS	FAVOURING INTERVENTION
			Time Management (percentile)	SE SKILLS	FAVOURING INTERVENTION
			Concentration (percentile)	SE SKILLS	FAVOURING INTERVENTION
			Motivation (percentile)	SE SKILLS	FAVOURING INTERVENTION
			Anxiety (percentile)	MENTAL HEALTH	FAVOURING INTERVENTION
			Depression (BDI-II)	MENTAL HEALTH	NO DIFFERENCE
			State-anxiety	MENTAL HEALTH	NO DIFFERENCE
			Trait-anxiety	MENTAL HEALTH	NO DIFFERENCE
			Worry (percentile)	MENTAL HEALTH	FAVOURING INTERVENTION
			GPA	ACADEMIC PERFORMANCE	NO DIFFERENCE
37	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Motivation	SE SKILLS	FAVOURING INTERVENTION
			Time Management	SE SKILLS	FAVOURING INTERVENTION
			Test Strategies	SE SKILLS	FAVOURING INTERVENTION
			Study Aids	SE SKILLS	FAVOURING INTERVENTION
			Performance/Daily Functioning	SE SKILLS	FAVOURING INTERVENTION
			Well-Being	SE SKILLS	FAVOURING INTERVENTION
			Relationships	SE SKILLS	FAVOURING INTERVENTION
			GPA	ACADEMIC PERFORMANCE	NO DIFFERENCE
			Credits Earned	ACADEMIC PERFORMANCE	NO DIFFERENCE

38	Accessing Campus Connections and Empowering Student Success (ACCESS)	CBT-based intervention	Global executive functioning (GEC)	SE SKILLS	FAVOURING INTERVENTION
			Behavior Regulation Index (BRI)	SE SKILLS	FAVOURING INTERVENTION
			Metacognition Index (MCI)	SE SKILLS	FAVOURING INTERVENTION
			Depression (BDI-II)	MENTAL HEALTH	NO DIFFERENCE
			Anxiety (BAI)	MENTAL HEALTH	NO DIFFERENCE
			Organization and time management (SFS)	SE SKILLS	FAVOURING INTERVENTION
			Maladaptive thinking (ACS-CV)	SE SKILLS	FAVOURING INTERVENTION
39	Organizational, time management, and planning (OTMP) skills CBT therapy	CBT-based intervention	ADHD-related impairment (total score with exception of the subscale "Work")	SE SKILLS	FAVOURING INTERVENTION
			Skills Use (OTMP Self-Report)	SE SKILLS	FAVOURING INTERVENTION

3.2.2. Interventions

The main components of the interventions in the included studies could be summarized by the following five categories: (1) cognitive-behavioural therapy (CBT)-based interventions, (2) non-CBT psychosocial interventions, (3) learning strategy training, (4) coaching/mentoring/tutoring, and (5) mind-body awareness training (Table 1). Two studies could not be described using these main intervention components, of which one study included a pharmacological intervention and the other study included a working memory training.

A large number of studies investigated CBT-based interventions (N studies = 13), which included, for example, traditional CBT, dialectical behaviour therapy and CBT-inspired skills interventions. Four studies included non-CBT psychosocial interventions. Coaching/mentoring/tutoring was the main intervention component in nine studies and the additional intervention component in another nine studies, resulting in a total of 18 studies with a coaching/mentoring/tutoring component. Of these 18 studies with a coaching/mentoring/tutoring component, 12 were guided professionally and eight (additionally) utilised peers as coach/mentor/tutor. Of all eight studies implementing a peer mentor intervention, seven specifically studied an ASD population. Other intervention components included mind-body awareness training (N studies = 5) and learning strategies (N studies = 2). Mind-body awareness interventions included mindfulness, device-guided breathing or neurofeedback. Learning strategies consisted of strategic or self-regulated learning.

The duration of interventions ranged from singular sessions to extended support over multiple academic years. Whether interventions consisted of group or individual sessions, or a mixture of both can be found in Table 1 and is summarized split by main intervention component in Table 3. Most interventions consisted of both individual and group sessions (N studies = 23).

Table 3.
Number of studies with group or individual intervention sessions split by main intervention component.

Number of studies	Group	Individual	Both	Total
CBT-based intervention	2	2	9	13
Non-CBT psychosocial intervention	0	1	3	4
Learning strategies	1	2	2	5
Coaching/mentoring/tutoring	1	1	7	9
Mind-body awareness	1	3	1	5
Other	0	1	1	2
Total	5	10	23	

3.2.3. Comparisons and Study designs

Of the 34 studies from which results could get extracted, the majority had a pre-post design (N studies = 18) and thus assessed the 'effectiveness' of the interventions by comparing the outcomes before and after the intervention. Fourteen studies combined both within group (pre-post) and between-group comparisons, from which 12 were randomized controlled studies in which students were randomly assigned to the intervention or control group. For the two other studies that combined within- and between-group comparisons, participants either were allowed to pick their own group or were assigned to a group based on personal schedules. Of all studies with pre-post measures, seven studies also included follow up measures. Furthermore, there was only one study that only made group comparisons (without pre-post comparisons) and one (pharmacological) study that had a crossover design.

In the studies that incorporated control groups in their study design, control groups consisted of waitlist control or treatment as usual groups. Two studies included a non-LD control group in their design,

which were the aforementioned pharmacological study and a study which compared a LD and a non-LD group at baseline. From these studies, only LD relevant results were extracted.

3.2.4. Outcomes

Outcomes were classified into three categories: assessments of socio-emotional skills, academic performance, and mental health (Table 2). From the 182 extracted findings, the vast majority were socio-emotional skills (N studies = 32, N findings = 128). Mental health related outcomes (N studies = 14, N findings = 40) and academic performance (N studies = 12, N findings = 14) were significantly less assessed.

Outcomes of socio-emotional skills were related to all five areas of competence within the CASEL social-emotional learning framework. For example, outcomes part of the Learning and Study Strategies Inventory (LASSI), used by various included studies, relate mostly to self-awareness, self-management and responsible decision making. Various other socio-emotional skills outcomes, such as questions on social relationships and communication skills, relate more to the social awareness and relationship skills areas of competence.

Reported mental health outcomes mostly involved depression (N studies = 11, N findings = 11) or anxiety symptoms (N studies = 14, N findings = 16). Academic performance was most often assessed with GPA (N studies = 9, N findings = 9).

Table 4.
Number of studies per outcome category split by main intervention component.

Number of studies	Socio-emotional skills	Academic performance	Mental health	Total
CBT-based intervention	11	6	8	25
Non-CBT psychosocial intervention	4	2	1	7
Learning strategies	4	2	0	6
Coaching/mentoring/tutoring	7	1	2	10
Mind-body awareness	4	1	2	7
Other	2	0	1	3
Total	32	12	14	

Table 5.
Number of findings per outcome category split by main intervention component.

Number of findings	Socio-emotional skills	Academic performance	Mental health	Total
CBT-based intervention	58	8	19	85
Non-CBT psychosocial intervention	17	2	2	21
Learning strategies	7	2	0	9
Coaching/mentoring/tutoring	24	1	6	31
Mind-body awareness	8	1	4	13
Other	14	0	9	23
Total	128	14	40	

3.2.5. Synthesis of results

The 182 findings extracted from 34 studies are summarized in Table 6, indicating whether findings are favouring intervention, opposing intervention or whether no difference in outcomes was reported. Overall, it appears that findings were mostly favouring intervention, with a large number of positive findings extracted (121 of 182 reported findings; 66%). Only one finding opposing intervention was extracted (< 1%), which was the result of a single question assessing the self-perception of students' social relationships to be affected by their LD, after a non-CBT psychosocial intervention (Table 2). The remainder of findings indicated no effect of the intervention (60 of 182 reported findings; 33%). In the following paragraphs, all findings are discussed by LD type, outcome category, study design and main intervention component.

Interventions targeting an LD population predominantly improved socio-emotional skills (88 of 112 findings; 78%). In this population, another pattern of results emerged for outcomes related to academic performance and mental health. For mental health outcomes, a similar amount of findings favoured the intervention (17 of 32 findings; 53%) and showed no effect of the intervention (15 of 32 findings; 47%). For academic performance, findings predominantly showed no effect (academic performance: 8 of 13 findings; 62%).

For the ASD population, half of findings on socio-emotional skills outcomes (8 of 16 findings; 50%) and 37% of findings on mental health outcomes (3 of 8 findings) yielded results favouring the intervention. For the ASD population, there were no findings favouring the intervention for the academic performance outcomes (0 of 1 findings; 0%).

Table 6.
Extracted findings split by LD type and outcome category.

Number of reported findings		=	+	-	Total
LD	Socio-emotional skills	23	88	1	112
	Academic Performance	8	5	0	13
	Mental Health	15	17	0	32
ASD	Socio-emotional skills	8	8	0	16
	Academic Performance	1	0	0	1
	Mental Health	5	3	0	8
Total		60	121	1	

Notes. The equals sign (=) refers to no reported effect of the studied intervention, the plus sign (+) and minus sign (-) refer to effects favouring or opposing the studied intervention, respectively.

In Table 7, all findings are presented by study design, in order to observe whether studies with observational designs (pre-post comparisons) yielded different findings compared to randomized controlled trials (the majority of studies with both pre-post and group comparisons). For socio-emotional skills outcomes, the pattern of results for the combined LD and ASD populations appears to be similar for studies with solely pre-post comparisons (62 of 80 findings, 78% favouring intervention) compared to studies with both pre-post and group comparisons (33 of 44 findings, 75% favouring intervention). However, findings related to mental health outcomes were more likely to be favouring intervention in studies with solely pre-post comparisons (16 of 28 findings, 57% favouring intervention) compared to studies with both pre-post and group comparisons (4 of 12 findings, 33% favouring intervention). Despite the limited number of reported findings on academic performance, studies with a pre-post design resulted in more findings favouring the intervention (3 of 7 findings, 43%) than studies with both pre-post and group comparisons (1 of 5 findings, 20%).

Table 7.
Extracted findings per study design split by LD type and outcome category.

Number of reported findings		Pre-post			Group			Both			Total
		=	+	-	=	+	-	=	+	-	
LD	Socio-emotional skills	10	56	1	3	0	0	10	32	0	112
	Academic Performance	3	3	0	1	1	0	4	1	0	13
	Mental Health	8	14	0	0	0	0	7	3	0	32
ASD	Socio-emotional skills	7	6	0	0	1	0	1	1	0	16
	Academic Performance	1	0	0	0	0	0	0	0	0	1
	Mental Health	4	2	0	0	0	0	1	1	0	8
Total		33	81	1	4	2	0	23	38	0	

Notes. The equals sign (=) refers to no reported effect of the studied intervention, the plus sign (+) and minus sign (-) refer to effects favouring or opposing the studied intervention, respectively.

Lastly, Table 8 summarizes all findings presented by LD, outcome category and main intervention component categories. The proportion of findings favouring intervention for all intervention categories - regardless of outcome category and LD - is as follows: 69% for CBT-based interventions (59 of 85 findings), 67% for non-CBT psychosocial interventions (14 of 21 findings), 44% for learning strategies (4 of 9 findings), 65% for coaching/mentoring/tutoring (20 of 31 findings), 54% for mind-body awareness training (7 of 13 findings) and 74% for other interventions (17 of 23 findings).

For CBT-based interventions, outcomes related to socio-emotional skills mostly favoured the intervention (49 of 58 findings; 84%). This was less so for outcomes related to mental health (8 of 19 findings, 42% favouring intervention) and academic performance (2 of 8 findings, 25% favouring intervention). The same pattern of results emerged for non-CBT psychosocial interventions and coaching/mentoring/tutoring, for which findings on socio-emotional skills outcomes favoured the intervention more than findings on mental health and academic performance outcomes. Another pattern results emerged for mind-body awareness training, and other interventions, for which a proportionally large number of mental health findings (despite the small number of studies and findings) favouring intervention was found (4 of 4 findings, 100% favouring mental health outcomes for mind-body awareness training; 6 of 9 findings, 67% favouring mental health outcomes for other interventions). Findings on socio-emotional skills outcomes were overall mixed for mind-body awareness training, and predominantly favouring the intervention for other interventions. The few studies on learning strategies resulted in overall mixed findings for all outcomes.

Table 8.
Extracted findings per main intervention component split by LD type and outcome category.

Number of reported findings		CBT-based intervention			Non-CBT psychosocial intervention			Learning strategies			Coaching/mentoring/ tutoring			Mind-body awareness training			Other			Total
		=	+	-	=	+	-	=	+	-	=	+	-	=	+	-	=	+	-	
LD	Socio-emotional skills	8	47	0	4	11	1	4	2	0	2	14	0	2	3	0	3	11	0	112
	Academic Performance	6	2	0	0	2	0	1	1	0	0	0	0	1	0	0	0	0	0	13
	Mental Health	10	7	0	2	0	0	0	0	0	0	0	0	0	4	0	3	6	0	32
ASD	Socio-emotional skills	1	2	0	0	1	0	0	1	0	4	4	0	3	0	0	0	0	0	16
	Academic Performance	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1
	Mental Health	1	1	0	0	0	0	0	0	0	4	2	0	0	0	0	0	0	0	8
Total		26	59	0	6	14	1	5	4	0	11	20	0	6	7	0	6	17	0	

Notes. The equals sign (=) refers to no reported effect of the studied intervention, the plus sign (+) and minus sign (-) refer to effects favouring or opposing the studied intervention, respectively.

4. Conclusions

This systematic review aimed to summarize the existing literature on the effectiveness of interventions for SEL in students with LD in HE. An extensive literature search resulted in 39 studies investigating interventions for SEL in HE students with LD. From 34 of these studies, 182 findings related to socio-emotional skills, mental health and academic performance were extracted and analysed. Overall, this systematic review suggests that interventions for SEL in HE students with LD are associated with an improvement of socio-emotional skills, but more research is necessary to evaluate the effectiveness on wellbeing and academic achievement.

4.1. Which SEL intervention components have been studied most in HE students with cognitive LD?

The main intervention components of the vast majority of included studies could be summarized by means of the following five categories (in order of frequency): (1) CBT-based interventions, (2) coaching/mentoring/tutoring, (3) non-CBT psychosocial interventions, (4) mind-body awareness training, and (5) learning strategy training. In the LD population, the majority of the studied interventions was CBT-based, while in the ASD population, the most frequently studied interventions included components of coaching, mentoring or tutoring. Furthermore, coaching/mentoring/tutoring was often implemented as either the main intervention component, or additional intervention component. Overall, the studied interventions often involved more comprehensive interventions combining various components into one program, and often interventions consisted of a combination of both group and individual sessions.

4.2. Which SEL intervention components are most effective in improving socio-emotional skills, mental health, and academic performance in HE students with cognitive LD?

In the LD population, the most frequently studied intervention component, CBT (e.g. traditional CBT, dialectical behaviour therapy, CBT-inspired skills training) generally resulted in an improvement of socio-emotional skills. Evidence on the effects of CBT-based interventions on mental health and academic performance was less convincing (i.e. resulted in more mixed findings). The same pattern of results emerged for non-CBT psychosocial interventions and coaching/mentoring/tutoring in the LD population. Mind-body awareness training was only limitedly studied, but the scarce evidence for its effects on mental health was more convincing than that for the effects on socio-emotional skills. The few studies on learning strategies resulted in overall mixed evidence for all outcomes.

In the ASD population, the scarce evidence on the effects of coaching/mentoring/tutoring (the most frequently studied intervention component in this population) on socio-emotional skills, mental health and academic performance was mixed.

Comparing study designs, there was no substantial difference between observational designs and RCTs in the assessed effects of the interventions on socio-emotional skills. However, for outcomes related to mental health, RCTs yielded less findings favouring intervention than observational study designs.

These conclusions are merely formulated based on the interpretation of patterns of results of the systematic review. A further meta-analysis (including a risk of bias assessment) is required to quantify the pooled effect size to more accurately assess the effectiveness of interventions for SEL in HE students with LD.

4.3. Which cognitive LD have been studied most in research on SEL in HE?

The majority of studies focused their intervention for SEL in HE on ADHD students. Some studies did not specify the LD population or included a mix of LD. The studies that specifically studied an ASD population, generally measured few outcomes, resulting in a proportionally low number of findings in the systematic review.

4.4. Which outcomes have been studied most in research on SEL in HE students with cognitive LD?

Almost all included studies assessed the effectiveness of interventions for SEL using outcomes related to socio-emotional skills and thus, socio-emotional skills were by far the most studied outcome category. Fewer studies included outcomes related to mental health and even less studies included academic performance as outcome.

4.5. For which intervention components and outcomes exist a substantial research gap in research on SEL in HE students with cognitive LD?

Despite this systematic review providing a rich overview on the effectiveness of interventions for SEL in HE students with cognitive LD, various aspects have only scarcely been explored. First, there is a lack of studies investigating the effect of interventions for SEL on mental health and wellbeing, and academic performance. As SEL in HE is considered essential for academic achievement and to safeguard mental health and wellbeing, it is important to more systematically investigate the effectiveness of interventions for SEL on outcomes related to these domains. For now, findings on the effects of SEL interventions on mental health and wellbeing, and academic performance are too scarce to synthetize evidence without a meta-analysis.

Furthermore, it remains difficult to assess the effectivity of specific intervention components to enhance SEL in HE students with LD. Most studied SEL interventions involved extracurricular programs and did not embed the intervention in education in the curriculum (e.g. in an inclusive way). Additionally, the now studied interventions often combine various different intervention components, increasing the difficulty to extract the effect or added effect of individual intervention components. Moreover, most studies predominantly focus on cognitive-behavioural intervention mechanisms, while more affective mechanisms are less commonly integrated in SEL interventions, while essential for socio-emotional learning. Finally, many interventions include specific socio-emotional skills (as intervention and/or outcome) without taking into account a broader model or framework on socio-emotional learning (such as CASEL), which may promote a more integral view and focus on the process behind acquiring and applying skills rather than the skill itself.

Focus groups

Four cases: UCY, VUA, UOC, ELTE

1. Aim

Through focus groups, we aimed to gain a better understanding of the barriers and facilitators of socio-emotional learning (SEL) in higher education (HE) students with cognitive learning difficulties (LD). Four focus groups were run (one by each partner: UCY, VUA, UOC, ELTE). The following research questions were investigated:

1. Which socio-emotional (SE) skills are challenging to train in HE students with LD?
2. What hinders SEL in HE students with LD?
3. What facilitates SEL in HE students with LD?
4. Should SEL be offered in an inclusive way?

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

2. Methods

2.1. Participants

For each case, 5 to 6 participants were recruited via purposive sampling, focusing on expertise with SEL and LD in the focus group. This results in a heterogeneous group of participants, as set out by the stakeholders' engagement protocol. Table 9 lists the participants in each of the four cases. Ethics approval was obtained at each university where the focus group took place (UCY, VUA, UOC, ELTE).

2.2. 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[1]. The interview guide, which systematically addressed the three main research questions can be found in Appendix 1. The duration of the focus groups was between 90 and 120 minutes. Focus groups took place in person (UCY, ELTE) or online (VUA, UOC), in one session, and were video and/or audio recorded.

3. Analysis

Important themes emerging from the focus groups were identified via inductive thematic analysis[2]. In short, each of the four focus groups was verbatim transcribed in the original language, repeatedly read, and coded in English with the specific research questions in mind. Next, patterns of codes were sought, and overarching themes were identified.

[1] The focus group protocol can be found here.
[2] A detailed focus group analysis protocol is available here.

Table 9.
Roles of focus group participants in the four cases.

UCY	VUA	UOC	ELTE

• an academic staff member
• a mental health staff member
• a student representative with undiagnosed LD
• an alumni representative with undiagnosed LD
• an administrative staff member
	• 3 undergraduate students with diagnosed LD:
	  ○ dyslexia (diagnosed)
	  ○ ADHD (diagnosed)
	  ○ combined dyslexia (diagnosed), ADD and memory difficulties (undiagnosed)
	• SEL lecturer
	• SEL junior lecturer
	• an advisor from an external expertise centre in inclusive education
		• 2 undergraduate students with LD
		• 1 undergraduate student without LD
		• 2 counselors
			• a university psychologist
			• a member of education administration
			• a student with a diagnosis of ADHD
			• a student without LD

4. Results

Below the integrated findings of the four focus groups for each research question are summarized. Results of the inductive thematic analyses specific to each case can be found in Appendices 2 to 5.

4.1. Which SEL skills are challenging to train in HE students with LD?

Theme: Individual and common challenges

Generally, participants without SEL expertise indicated it to be difficult to identify the broad set of SE skills. Additionally, some participants indicated it was difficult to determine to which extent strengths and difficulties in SE skills are related to LD (VUA, UOC).

After the discussion, a variety of SEL skills were identified by faculty staff as assumed to be difficult for students with LD, or experienced as difficult by students with LD (VUA, UOC, UCY). However, not all students with LD experience the same skills as difficult (VUA). SE skills that were discussed as challenging for students with LD included communication of extra needs and assertiveness, time management and planning, comprehension-based analytical skills (critical thinking, decision making, problem solving), skills that require other skills and require a lot of practice.

4.1.1. Communicating needs is a challenge

Some faculty staff suggest that communication and cooperation may be an added challenge for students with LD, specifically when it comes to communicating their extra needs (VUA, ELTE). It requires a self-awareness

(ELTE) and a level of assertiveness (UOC) to communicate what they need, which is an additional difficulty students with LD are confronted with.

> ***VUA SEL junior lecturer:*** *So in general, I think communication and cooperation is quite hard. I think everyone recognizes a situation where the communication or the cooperation was quite hard. But I think especially for students with learning disabilities it can be harder to communicate what extras they need or I don't know if I'm [right]. So I can imagine that students have different needs and that it's not the same as the needs that other students have, and they have to be more clear. And the communication and the cooperation on what they need or what they want and that that makes it makes it they need a higher level of thinking about what they need. So more reflectiveness and also better communication about what they need or what they want.*

> ***UOC Counselor 1:*** *Assertive behaviour could be taken as one such skill? In the context of our discussion, that is to claim/vindicate what they need, to learn how to say "no" to things, all these could be taken to be SE skills?*

> ***ELTE University psychologist:*** *(...) the recognition of needs. So, what are my needs and what are the needs of the other person, and whether it's separable or is there a situation where it's very much one and you don't even realize which is mine and which is the other person's. And I think that's an area that's really worth looking at.*

Lack of assertiveness in students with LD may be related to "feeling a burden" (VUA), and stress and anxiety associated with that (UOC). Students with LD feel that asking for help is a hassle and inconveniences people (VUA). Therefore, they find it difficult to ask for accommodations. It seems to them more difficult to ask for help than sorting things out on their own. Mostly, students with LD don't disclose their LD because they don't want people to see them as their problem. Only when their daily functioning becomes problematic, they choose to share their LD (VUA).

> ***VUA LD student dyslexia****: They say there's like, oh, there's the counselor, there's this, this and that. But then it's kind of like really a hassle to go through it and like actually go through and ask for the help. And then you feel like you're inconveniencing people by asking for it.*

> ***UOC student:*** *Right, I would like to stay with the point of anxiety/stress students facing LDs may be experiencing because we need to remember that they are facing way more difficulties than the rest of the [student] population. For this reason, when they enter a new environment, and they face considerably more stimuli (emphasis) I take that their anxiety increases way more.*

4.1.2. Tasks require more time and effort; time management and planning are critical

Students with LD realize that they can do everything, but tasks take longer and require more effort (VUA). Tasks take longer for students with LD because it is more difficult for them to focus attention, they require more time to process information and they need more practice to learn and apply skills (VUA). For this reason, time management, planning, organization, and goal setting are imperative, yet a challenge (VUA, UOC, UCY).

> ***VUA LD student dyslexia:*** *It's not that I can't do it or that I don't know how or what, it just takes me like way longer than it would take the average person to do. So I can do it. I just need more time to do it. So I don't ask for help because I can get it done and just need a little bit more time to do it.*

> ***UOC Counselor 2:*** *An additional difficulty I was thinking as you are talking, is the issue of time management going hand in hand with the issue of aims and goal setting and procrastination.*

UCY academic staff member: *Possibly I would say planning and organizing are usually [skills] that are lacking in people with learning difficulties or attention deficit or people who have experienced and are experiencing intense stress. They struggle a lot to organize if you just tell them a couple of ways to do so.*

4.1.3. Analytical skills based on comprehension are difficult

When it is difficult to comprehend available information, which is mostly common in students with LD, it is difficult to think critically about this provided information, use this information for problem solving, and to make decisions accordingly. Analytical skills, such as critical thinking, problem solving and decision making, are all important skills in HE, yet, more difficult to train in students with LD (VUA, UOC).

VUA LD student dyslexia: *So if you don't really know what it means because you're not understanding, because it's harder to comprehend, then you can't make a good critical decision on it as how other students would be able to do it.*

4.1.4. SE skills that require other SE skills and extensive practice are more difficult

Some advanced SE skills require other, more basic SE skills. These more advanced SE skills also require lots of practice and more time to develop. For example, more advanced skills, such as emotion regulation, empathy and stress management, require basic skills, such as self-awareness, interpersonal awareness, planning and organizing, respectively. Faculty staff and students indicate that such advanced skills might be more challenging to train in students with LD (VUA, UCY, ELTE).

VUA SEL lecturer: *I think I don't have much experience with the students with learning difficulties, but what I've seen is that those skills that require more practice are more difficult. So maybe self-awareness and social awareness are easier than, for example, stress management or emotion regulation (…)? Maybe they can cognitively understand what it means, but they actually [have to] do it. It takes just more time and more practice. So but I'm not sure [whether] that relates to learning disabilities.*

UCY student representative: *I would start with stress management, which I believe is the first outcome of the issue with planning and organizing for example. Because when someone is stressed, things inside him/her become a blur, and especially in people who struggle to or have issues with their concentration and [academic learning].*

ELTE university psychologist: *(...) the other one is related to social learning and emotionality, the ability to tune in. Whether it's attunement with the other or attunement with oneself, and it's also connected to the recognition of needs. (...)*

4.1.5. Team work raises both challenges and opportunities (VUA)

Teamwork is experienced as difficult by students with LD because of several reasons. They experience a lot of pressure to perform well for the group, to meet group expectations and to meet group deadlines. Insecurities are high, especially when students with LD feel that other group members may have better skills. Also it seems difficult to take the lead in a group.
On the other hand, sometimes group work can provide structure and can help to set expectations.

VUA LD student ADHD: *It's always harder when working with a group because you have this pressure to, you know, you're not doing it for yourself, you're doing it for a group. You have the pressure to meet, to have to do it better, to have to do it like how the rest of the group expects you to do it rather than doing things in your own way.*

VUA LD student combined: *[When] working in a team, it's easier for me to complete my assignments, for example, or focus on one doing one thing because everyone is doing the same thing. So you kind of relate to that. But then when you're on your own, it's kind of hard for me to focus and give my full attention to something that needs to be completed by a certain deadline, for example.*

However, some students with LD explicitly note that, overall, personal skills are more challenging than interpersonal skills (VUA).

VUA LD student dyslexia: *I feel for me at least the ones that are within yourself, I find more difficult than the ones that are to do with other people. Like, I don't have a problem with communicating with people or anything like that, but then stuff that I have to do on my own just takes longer or requires more effort. But then if I've done it before, then working in a group or like trying to explain what I have done isn't really like a problem or anything. So the personal skills I feel are more difficult.*

4.2. What hinders SEL in HE students with LD?

Theme: High demands and pressure in HE (UCY, ELTE)

Both faculty staff and students identify the immense pressures of the academic system (including academic courses and the assessment system) to interfere with opportunities for SEL. The high demands of the university inhibit students from investing time in extra-curricular activities. This may translate to what faculty perceives as a lack of interest of students in extra-curricular activities such as SEL (UCY).

UCY student representative: *I totally agree with what has just been said. Just like we said, I believe the reason [for not attending skills workshops] is the overloaded schedule of the university. I don't think anyone would like to voluntarily do anything university-related, beyond university requirements, because these requirements are too many.*

UCY administrative staff member: *(...) truth be told, the University of Cyprus is very demanding. I mean it doesn't let [students] relax at all. They enter [the university], they study, they have midterms, some departments have double mid-terms, two mid-terms, and [then] the finals. (...) It's very demanding and I don't know if that's the correct system because it doesn't give them time to assimilate the information, to understand it.*

Due to the increasing academic workload of faculty staff, they lack time to invest in revising courses to integrate SE skills (UCY).

UCY administrative staff member: *Yes.. For the undergraduate course I don't ask for [presentations] because I will have to dedicate a lot of time in the second year that I teach to them.*

Solutions to reduce this high academic pressure could be reducing course materials, incorporating SEL as part of the curriculum, providing incentives for participation in SEL (UCY) and being more lenient and flexible (ELTE).

ELTE student: *(...) And so that, for example, they don't get mad at me if I'm late, but after being, say, 30 minutes late, I might just disrupt the process. But it shouldn't be penalized. So, I think the framework also has an upholding power (...) And then how that can be applied in reality, so that it's in everybody's interest.*

Theme: Insufficient regard for LD (VUA, UOC, ELTE)

Overall, participants indicate that HE lacks regard for LD, including insufficient awareness, knowledge and understanding of faculty members, and inadequate resources and support for students with LD.

4.2.1. Stigmatization, lack of awareness, knowledge and understanding of LD (VUA, UOC, ELTE)

Faculty staff indicate that, while some faculty members are sensitive to LD, most lack awareness of LD. Overall, faculty staff feel that they lack experience, knowledge and understanding of challenges in students with LD. They feel they are not sufficiently educated to support students with LD, and SEL. Additionally, a doer's approach to make changes to support LD is missing.

> ***UOC Counselor 1:*** *(coughing) I would say that there are levels of awareness with regards to the faculty members. That is, yes (emphasis), some are more or less [sensitized] than others. But if we had to say what's the trend (putting it as a question), my experience says that it is not the majority that is sensitized (pause 2s). They can be though. This is what we should aim for. (...) Because, one idea would be to run a seminar, for raising awareness, well I don't know with regards to learning difficulties. There we might get lost because it is not, because not everyone would attend, because awareness/sensitization is not a given.*
>
> ***UOC Student 1:*** *what I want (emphasis placed) is at least to get better, not the faculty member that is already good to become better, but rather the faculty member who is not there to just make an effort and care a bit more.*
>
> ***VUA SEL lecturer:*** *I think I don't have much experience with the students with learning difficulties, but what I've seen is that those skills that require more practice are more difficult. (...) So but I'm not sure [whether] that relates to learning disabilities.*

More extremely, stigmatization is recognized among lecturers and peers. Stigmatization inhibits self-acceptance, the assertiveness to ask for help, and participation in HE programmes. Sensitization programs are suggested to prevent stigmatization (ELTE).

> ***ELTE student:*** *And there is a stigma attached to daring to [open up about having difficulties] anyway. And as long as the attitude is that he's stupid and he gets the label, he might not take it up, because why would he take it up. He's not stupid.*
> *(...) the stigmatization, it's not just the lecturers I think. I think that this is also very strongly present among peers (...), and whether it is okay to ask for help, and whether someone who dares to ask for help is weak or actually strong.*

4.2.2. Inadequate resources and support (VUA, ELTE)

Students with LD discuss that insufficient resources are available, and applying for these requires a lot of effort, the process is slow and impersonal, and some resources are not at all very helpful.

Accommodations for students with registered LD are exam-based, not learning-based. The most significant accommodation students with registered LD can apply for is extra exam time, which they do not experience to be particularly helpful, given that the standard exam time is already very long. Aside from that, no other resources exist for students with registered LD. So no resources related to learning are available (VUA).

Connecting to a study advisor is difficult, and the process of connecting to a study advisor lacks a personal approach (VUA). The mostly exclusive digital forms of communication (e.g. email) between university staff and students are experienced as ineffective (ELTE).

> ***VUA LD student dyslexia**: For me it was that I wanted to contact the study advisor at the beginning of the year because I didn't know what university would be like. I didn't know if I was going to need more help or not. So when I began the process of handing in all the paperwork and stuff, they were like, once this has gone through and you're registered to have this at the school, you can go see your study advisor and talk about or whatever and see what you need to do. But then they still haven't processed it like it's still not complete. So I haven't spoken to the study advisor.*

> ***VUA LD student ADHD**: I've had an appointment with the study advisor already, but I personally didn't find it helpful because again, it was kind of going through the steps like, okay, so what you can do if you have like a doctor's note is that you can get extra time for the exam. But things like this, it's not really a personal approach on how to deal with it or anything. It's really something you contact. That was my personal experience. I didn't find it quite useful and it wasn't. It wasn't really a place where I could go again for months because they were kind of detached, I guess, from the academic side. So yeah, for me it didn't really help much.*

> ***VUA LD student combined**: Yeah, I feel like so far I only know one option which is that like your exams, depending on which exam you take and how long it is, you get like extra time with like 15-30 minutes at it. But our exams are already pretty [long] for me at least. There's already a pretty long time given: 2 hours and a half in most cases. So for me it's not really useful to even apply for extra time. So I haven't yet. But other than that, I don't know any other resources that are offered to people with learning difficulties.*

> ***ELTE LD student:** For example, I always slip up with applying for social support because I always miss something, I don't really understand what and I ask in vain, it's like talking to a wall because [university] only communicates by email.*

4.3. What facilitates SEL in HE students with LD?

Theme: More learning opportunities

The large volumes of information to be processed is a true challenge for students with LD (UOC). Overall, students with LD indicate that interesting and relevant content, and motivation, are essential to facilitate the learning process (VUA, ELTE).

> ***ELTE LD student**: And the question of motivation. It's also important how much it's worth for [students], how much they can fit it into their timetable if they work alongside [university].*

In addition, it is important to discuss different ways of learning when designing courses. Providing more learning opportunities, through multiple methods and tools for studying, allows students to select what works best for them for a specific course (VUA, UCY).

4.3.1. **A multitude of methods to learn the same is key** (VUA, UCY, ELTE)

Students with LD agree that providing multiple methods and tools to consume the same information is pivotal. This way, students can choose whatever method works best for them, for each course, as each course requires different skills and each student has different learning approaches.

Lecturers agree that different learning methodologies and different types of education activities may be helpful. One suggested education format which integrates a multitude of teaching methods is Universal Design for Learning.

> ***VUA LD student ADHD****: But I think just having a multitude of options [works], because I find for different courses, different things work. (…) So it's just nice having multiple, multiple options.*
>
> ***VUA Inclusive education adviser****: It's called Universal Design for Learning… So you can actually make your lessons and your lectures in the form so that everybody can follow your lectures at their own pace and what they need.*
>
> ***UCY alumni representative:*** *I believe that different types of activities, and it shouldn't be one [activity] per skill, because when you start to incorporate two or three different ways of covering the same [skill], you find yourself in a position where you are more likely to find a way that works for everyone. [This will allow] space for repeating some things (…). Using different kinds of activities that are shorter and concise, you leave space even for those who have other types of disabilities or difficulties. And because they are [in] one group, you also don't bring this, this component of "You who have a special problem [you need] to come here and discuss it". But at the same time, you create a space for all the people you have there, who might be undiagnosed, and they may not even need the diagnosis, or for all the people who have a difficulty at a lower level than the one that would be diagnosed.*

Visualizations and animations are helpful resources when explained well (VUA)

Students with LD explain that textbooks often have too many words and information. When lecturers talk without any supporting visuals, often the words go over their head. Presentation slides often have too little detailed information. Therefore, visuals, such as diagrams, animations, videos, presented supplementary and consistent with text and words are helpful. Especially stepwise learning by animations in which the visuals are explained step-by-step are helpful.

> ***VUA LD student dyslexia****: I think what works best for me is diagrams, especially. So rather than like explanations in words to just see it or to see them next to each other, it's a lot easier to understand that way. And it requires a lot less like brainpower to process what it means.*

Lecture recordings are helpful (VUA)

The combination of live and recorded lectures is especially helpful. Recorded lectures are particularly helpful in case of moments of inattention during the live lecture. However, university policy (VUA) is to not record lectures anymore in order to increase physical presence during live lectures. Students with LD experience this as an unfair punishment.

> ***VUA LD student ADHD****: For me, I find it hard to ask teachers for things where they feel like they're not accommodating on purpose. For example, I've always liked to have recorded lectures as well as in person. I always go in person, but I also like to have the recorded lectures in case I missed something or something because of inattention sometimes. But I feel like often teachers are like, No, that's not possible because our goal is to have as many students come to the lectures as well. But so it's kind of like a punishment to not. So then it's hard to reach out to and ask for this extra support.*

4.3.2. More opportunities to prepare, practice and be evaluated (VUA, UCY)

Allowing the opportunity to prepare lectures or work groups, is helpful to process information more easily. Therefore, making materials accessible in advance would be beneficial for students with LD (VUA).

Similarly, the opportunity to practice and apply theory in real life applications is helpful (VUA). Therefore, teaching methods such as experiential learning, workshops and seminars, preferably in small groups, which allow time and space to practice skills are preferred (VUA, UCY).

Deadlines are helpful as they provide structure and help with time management. For example, more partial exams are easier to take on than one extended exam for students with LD (VUA).

> ***VUA LD student ADHD**: So a lot of the time we have work groups that are canceled or we have things removed from the schedule just because there were too many to accommodate. But the thing is, I know for a lot of students, they don't want to travel so far. They don't mind that these work groups are canceled. But I think for other students, they would still appreciate [the work groups]. Especially for me, I know I enjoyed the work of having this close contact, being able to go through the information again slower. And I think that just having it as an option, even if it's not mandatory and not accommodating to everyone, because not everyone wants to go to this, but then it's a possibility to have [them] as an option.*

Theme: A more personal approach

Students have a strong appreciation for a personal approach in education. Especially for SEL, relatedness (VUA) and time for more informal conversations (UOC) are essential. Connections between students and teachers can be enhanced by small group teaching (VUA, UCY, ELTE), personal tutors or mentors (VUA, ELTE, UCY) and a safe space for sharing (learning) experiences (VUA, ELTE).

> ***UOC LD student 2:** In general the faculty should try to be analytical with the procedures that student will go through (pause 2s) to be more open to discussions and after class, because in general I feel ok they give you office hours and if you have questions you can send emails, but I consider this a very distant way of communication, nobody ever goes to office hours and with emails they do respond with delays. I believe [it would be good] to be willing to sit with you and respond to your questions after class, and to respond to questions, that most of them [academics] are not willing to do so. That could be a solution.*

4.3.3. Relatedness is more important than expertise (VUA, ELTE)

Both students and lecturers agree that, ideally, students are taught by an expert in the field of education or tutored by a specialist in LD, who also connects to students and creates a safe space for sharing. Especially for SEL, relatedness is essential, as SEL is “putting yourself out there”.

> ***VUA SEL junior lecturer**: Yeah, I think that's quite a hard question because I think there are multiple sides. So on the one hand I feel that you need certain skills or certain capabilities to guide or to help them with this process and to help students with learning disabilities. So you need certain skills and I'm not really sure if all tutors or if I have them. So I feel like that it would be very good if someone was specialized in facilitating students with learning disabilities. On the other hand, I also noticed that I'm very close with my students so they know me, I know them, and it's like a safe space we have. And that makes the conversation about learning and social development and emotional development and about the struggles they have much easier. So I feel like on the one hand, they deserve someone who knows how to guide them, has a lot of time for that, is educated in training, social skills and emotional skills. On the other hand, they also deserve a safe space, and that's the thing that I can offer them.*

Specialists in LD have an important role for students with LD, as they can help figure out how to cope with LD as a student, and give advice on learning methods that may work for students with LD (VUA). However, talking to an LD expert often becomes a clinical situation with rights and wrongs. This is not beneficial for SEL. More important than expertise in LD or SEL, is the ability of the lecturer to be socially sensitive and to create a safe environment. Therefore, an informal personal support person, tutor or mentor, would be more preferred.

> ***VUA LD student dyslexia**: Because from my experience, when you have someone who you are talking to because you know you're talking about this specific topic of 'I have this learning disability' and 'we're together here to do something like work on it' or whatever. When you're in that situation, it kind of feels more clinical and like there's like a right and a wrong answer. And if, you know, that's what they're there for, I feel the conversation will stick very much just to that. But like she said, when the students have like there's other issues that students have as well, which you can talk to with the tutor, which you wouldn't be able to express with someone who, you know, is there to talk about this one specific thing.*

> ***ELTE student:** In many cases, it is enough to be welcoming and to have a basic set of skills that are stable. To create and maintain such a group, if you can make sure that they are accepting of each other (...) But I think it's also an advantage if they are accepting, it helps and it can keep them in the group.*

> ***ELTE university psychologist:** I think their social skills are more important than their education. So having a high empathy, sensitivity, accepting attitude, is much more important than what degree they have or even what field they have.*

It is recognized that, because of the relatedness between peers, students can help manage small groups, and can facilitate both SEL and a safe space (ELTE).

> ***ELTE student:** Yes, or not just the Student Council, but any student who would like to join. Anyway, the group sessions are usually led by 2 group leaders and it is enough if one of them is a semi-group leader, I mean, a semi-group leader who is not a qualified professional, but an upper-year student. I think that would work very well for such a group. And it would also give a lot of opportunities to people who would like to join such a group as students. That it could be beneficial in many ways. I'm sure we could even find someone in the faculty of psychology who would like to lead a group like this, or who would like to try out a role as a co-therapist.*

> ***ELTE university education administrative staff:** Well, yes, and them being peers, I wouldn't think it's therapy (implying stigmatization of going to therapy), and I don't know (…), so it brings them closer to the whole thing.*

4.3.4. **Small groups** (VUA, UCY, ELTE)

Small group teaching in work groups or practicals has important advantages over large classrooms or lectures. Small physical work groups allow more direct contact and connection with the teacher, the occasion to ask questions and the opportunity to process the information again but slower (VUA). They also enable contact and communication with peers, learning from peers and sharing of experiences between peers (UCY, ELTE).

> ***VUA LD student ADHD**: I know for me, for me specifically, the smaller classroom, it's definitely better having the direct contact with the teacher.*

> ***ELTE student:** (...) if there are enough tutors or mentors or mediators in a small group, I think it could be organized in such a way that everyone can speak safely, even those who find it difficult and those who*

speak too easily or too much, so that they have space. So I'm more sympathetic to a more mixed group (...), but the number of participants is important there. So a group of 30 people might be too big.

4.3.5. **A safe space** (VUA, ELTE)

A safe space makes it easier to talk about difficulties, and is essential to discuss SEL struggles. Especially tutors are well equipped to create a safe space for students and open up more difficult conversations. In this safe space, the connection and sharing with other students is very important in the learning process.

Disruptions of this safe space make it difficult to put yourself out there, generate a high threshold for participating and sharing in SEL activities, create feelings of embarrassment and bring down the whole group. Disruptions are often due to unmotivated or non-participative students.

> ***VUA LD student ADHD**: I think especially in this kind of situation where like if you're talking about social emotional skills, I think it gets quite personal. So you're really putting yourself out there. So if you are in a group with people who don't relate, they don't really want to be here. They're waiting, waiting for the class to be over. And I think it's especially hard to put yourself out there in this situation. And then I don't think you're gaining much from them, just shame.*

> ***ELTE student:** (...) if there are enough tutors or mentors or mediators in a small group, I think it could be organized in such a way that everyone can speak safely, even those who find it difficult and those who speak too easily or too much, so that they have space. So I'm more sympathetic to a more mixed group (...), but the number of participants is important there. So a group of 30 people might be too big.*

4.3.6. **A personal tutor or mentor** (VUA, UCY, ELTE)

To students with LD, a tutor or mentor would have many advantages, especially when experiencing difficulties or in case of significant changes.

> ***UOC LD student 2:** Because if we don't think of a first year student who has just come to all this new thing, who needs to be independent, to run his own home, manage money, and all these external factors who compete with the time you need to give to Uni, in which they don't know the specifics about the exam period, how to take notes of the faculty lectures as quick as needed, how to speak and read [for Uni]. In general they are rookies, let's say.*

> ***ELTE university psychologist:** For some reason, I thought of the mentor thing in connection with this, so I think that might help. But somebody might get really frustrated with it or, say... but I don't think it's a bad idea anyway. So, to connect people, where a small community can develop, where people might prefer to talk about the gaps that they have or have had, or which cause difficulties at the beginning, in a smaller group rather than in a large one...*

A personal tutor who students can reach out to at any time, and reverse, who can reach out to students at any time, would be ideal. A personal tutor who really gets to know the students, can have tailored discussions, notices progress, holds students accountable, and puts grades in perspective. Confidential personal tutor meetings would stimulate honesty, and students would want to show the tutor progress and make them proud (VUA).

Ideally, students can choose a tutor they can relate to and are on the same wavelength with (i.e. "click with"), and that can create that safe space for them (VUA).

Students also indicate that this initiative for tutoring should be with the university rather than the students (VUA).

***VUA LD student combined**: I wanted to say that one thing that really helped me get through high school and just open up about my mental state and everything was and except my disorders obviously was not like obviously they were voluntary. If you don't want to meet your tutors at all. But for me, they were kind of mandatory meetings with my tutor one on one where everything is confidential so nothing goes to my parents. I can just be really straightforward with him. And it was like at least once a month, which really helped me get through my high school years and just understand that not getting one good grade does not mean that you're less smart or less than everybody else or something. So yeah, it really helped me. And I wish that we had this here as well, that it was also mandatory for students so that they could build this relationship with their tutor like an honest relationship so they can open up and their tutor would like to seek some kind of help for them if that's needed. (…) But it should also be a person's own choice because I feel like if it's the constant, like if the same tutor that the student needs and they just don't click in any way, the student just doesn't feel like sharing anything personal with that tutor or like the problems that they face. So I feel like it really should come to the student's choice, of which tutor should be [theirs]. But in any case, every tutor should be welcoming, obviously, and try to help.*

4.3.7. **Dilemma between mandatory vs. elective SEL** (VUA, UCY, ELTE)

Choosing between mandatory vs. elective SEL is difficult.
Ideally, SEL should be a compulsory part of a student's curriculum, as it is important for all students.

***UCY administrative staff member:** Some important seminars, workshops, could be [included] as mandatory [activities] during the students' Induction week.*

However, students also argue that SEL should be voluntary, as motivation and engagement are essential for SEL to be effective (ELTE).

***ELTE student:** I think [SEL training] is effective if [students] go in of their own volition and they aren't forced to attend. Because if I take a class that I am taking on my own, I will do better than the class that I am required to take. Maybe.*

In addition, when SEL is mandatory, disruptive students have a very negative influence on the group, and interfere with the learning of students who are eager to develop themselves more (VUA). On the other hand, exposing students to SEL and forcing them to reflect on SEL may help soften sceptical students a bit, and make them see the importance of it (VUA).

***VUA SEL lecturer**: Yeah, I agree. I think it's also very difficult to find, like, the middle way on how to engage all students, but also give a specific, meet a specific need from students, and especially for those students that don't want to be there. But I think also only exposing them to the content sometimes helps. At least that's what I've seen and some students that at the beginning, it's not everyone, but at the beginning were a bit sceptical or not really into the topics and as the session continues, they start kind of soften a bit and, and seeing the use of reflecting or these types of skills. But I also see how that demotivates the other students and makes the sharing of personal things less, yeah less.*

4.4. Should SEL be offered in an inclusive way?

Theme: Inclusivity with the opportunity for personalization

While there is agreement that inclusivity is the way to go, it is also emphasized that SEL requires an individualized, tailored approach to be maximally effective.

It is also emphasized that inclusive education requires a lecturer who is skilled to manage and support diverse groups (ELTE).

> ***ELTE university education administrative staff:*** *(...) And I was also thinking about who is holding [SEL training], the group leader himself, how skilled he is in dealing with these kinds of difficulties. So I think it really depends on the person who is holding it. Because I think that in a well-managed group, I'm a great believer in inclusion.*

4.4.1. What helps students with LD, would help all students (VUA, UOC, UCY, ELTE)

Students and faculty staff agree that SEL is important for all students and needs more emphasis, regardless of LD. Regarding methods of teaching, there is consensus that whatever helps students with LD specifically, would help all students in general, and thus inclusivity is preferred (VUA, UOC, UCY). For example, more diverse teaching methods would help *all* students. Additionally, an inclusive approach has the advantage that it improves the learning process through interactions with peers, but also enhances their integration at the university (UCY).

> ***VUA LD student ADHD****: But I think that a lot of things apply generally to all students, even if it would help [students with learning difficulties] more maybe specifically. But I think there's a lot of tools that anyway, it would help everyone. And so. Yeah, it wouldn't have to be specific. The thing with having different options, having, you know, accommodating to everyone, whether it's social, emotional skills, a social emotional disability, or it's simply just a student that has different learning approaches.*

> ***UCY administrative staff member:*** *No, you shouldn't separate them. The integration we were discussing [before]. All individuals should be together. [To have] specialization in some things, yeah. But you shouldn't do a seminar for people with disabilities, another one for [people] with learning difficulties and another one for the rest let's say. (...) All individuals should feel that they are students of the same university, the same community, unless it [concerns] something that is very specialized, which is different. But based on what we are discussing, the general [skills], I think they need to be [taught] together.*

> ***UCY academic staff member:*** *(...) I agree that it can [include] different methodologies, be something that doesn't take time, [and that] all students should be together [and] not separated. In some way, it should be taken into consideration that all students, or actually every student, has multiple identities and a learning difficulty might be one of those identities. Further it might be one's gender, language, place of origin. (...) Hence, it would be very useful to have some case studies that [capture] these multiple identities so that the participants feel that they are somehow covered with these issues or that this case study is relevant to me too.*

4.4.2. A personalized approach (VUA, UOC, ELTE)

Despite the preference for inclusivity in HE, SEL also requires an individually tailored approach to maximize learning in all students (VUA, UOC, ELTE).

> ***VUA LD student dyslexia****: So if you just shove everyone in a box and teach it to everyone in the same way, there will be people that learn something from it. But then I think there's also going to be a large group of people that gain absolutely nothing from it because it's just not presented to them in a way that they can do anything with it.*

> ***UOC student****: However, [the approach taken] should give the opportunity if some students have some additional problems or difficulties/challenges to offer them an additional session that could be exclusively*

dedicated to their individualized difficulties and so that it always seeks to be inclusive, and so that it avoids student stigma[tization].

ELTE LD student: *(...) [neurodivergent students] are subjected to a lot of atrocities in their lives and maybe that makes them a bit more silent and difficult to ease into [groups], so on the one hand, easing [into groups] should be reinforced somehow. (...) And it is easier if they are surrounded by similar neurodivergent people, because then at least in the group they feel that they are not outsiders. (...) For example, I'm not satisfied with the fact that the university support centre for special students' needs does not have a separate ADHD group, but the autistic people do and this again comes out strange. It's obviously the university's budget, but it makes me feel more isolated, that I could have the opportunity to know someone, even from the [same faculty], but I just don't know them.*

5. Conclusions

Integrating the four cases, the following overall conclusions can be formulated, which are also represented in the summary map in Figure 2 and the integrated thematic map in Appendix 6.

SEL in HE students with LD is particularly challenging, due to the combination of several factors: (a) high demands and pressure in HE, (b) difficulties in specific socio-emotional skills in LD students, and (c) insufficient regard of the HE system for LD.

The high demands in HE for students inhibit engagement from students in activities other than academic activities that may serve their personal development, while the high pressure in HE for staff inhibits the embedding of SEL in the curriculum.

Yet, HE students with LD may benefit from specific socio-emotional skills that may be challenging to them. The communication of LD needs is an extra challenge for students with LD that requires self-awareness and assertiveness. The difficulty of communicating needs may be related to feeling a burden and inconvenience. Time management and planning are a challenge in LD, yet critical, as all tasks require more time and effort for students with LD. Analytical skills (e.g. critical thinking, problem solving, decision making) are difficult when comprehension of information is lacking. Furthermore, advanced socio-emotional skills (e.g. emotion regulation, empathy, stress management) that require other basic socio-emotional skills (e.g. self and interpersonal awareness, planning and organization) and extensive practice are difficult. Team work raises both challenges (e.g. meeting group pressure and expectations) and opportunities (e.g. structure by a set time schedule and deadlines).

Another barrier for SEL in HE students with LD is the insufficient regard for LD. Overall, university staff lack awareness, knowledge and understanding of LD, and in some cases even reinforce stigmatization of LD. Resources and support for LD are inadequate: insufficient, slow, impersonal, and not necessarily helpful.

Changes in HE practices provide important opportunities to lift the above barriers. Specifically, more learning opportunities and a more personal approach in HE are key. More learning opportunities include (a) a multitude of methods to learn the same (complementing texts and words with visualizations, animations and videos such as lecture recordings), (b) more occasions to prepare and practice course materials, and to be evaluated. A more personal approach is essential as, for SEL, relatedness is more important than expertise. Relatedness could be established by small group teaching, a personal tutor or mentor, and an emphasis on a safe space for sharing experiences. Whether SEL should be implemented in a mandatory or elective manner is a point of discussion with advantages and disadvantages of both approaches.

Generally, there is consensus that **inclusive teaching of SEL in HE is the way forward, taking into account personalization** of SEL, regardless of LD. There is agreement that HE practices that support students with LD, would support all students. However, SEL would benefit from a personalized approach, tailoring SEL to individual needs and wishes, regardless of LD.

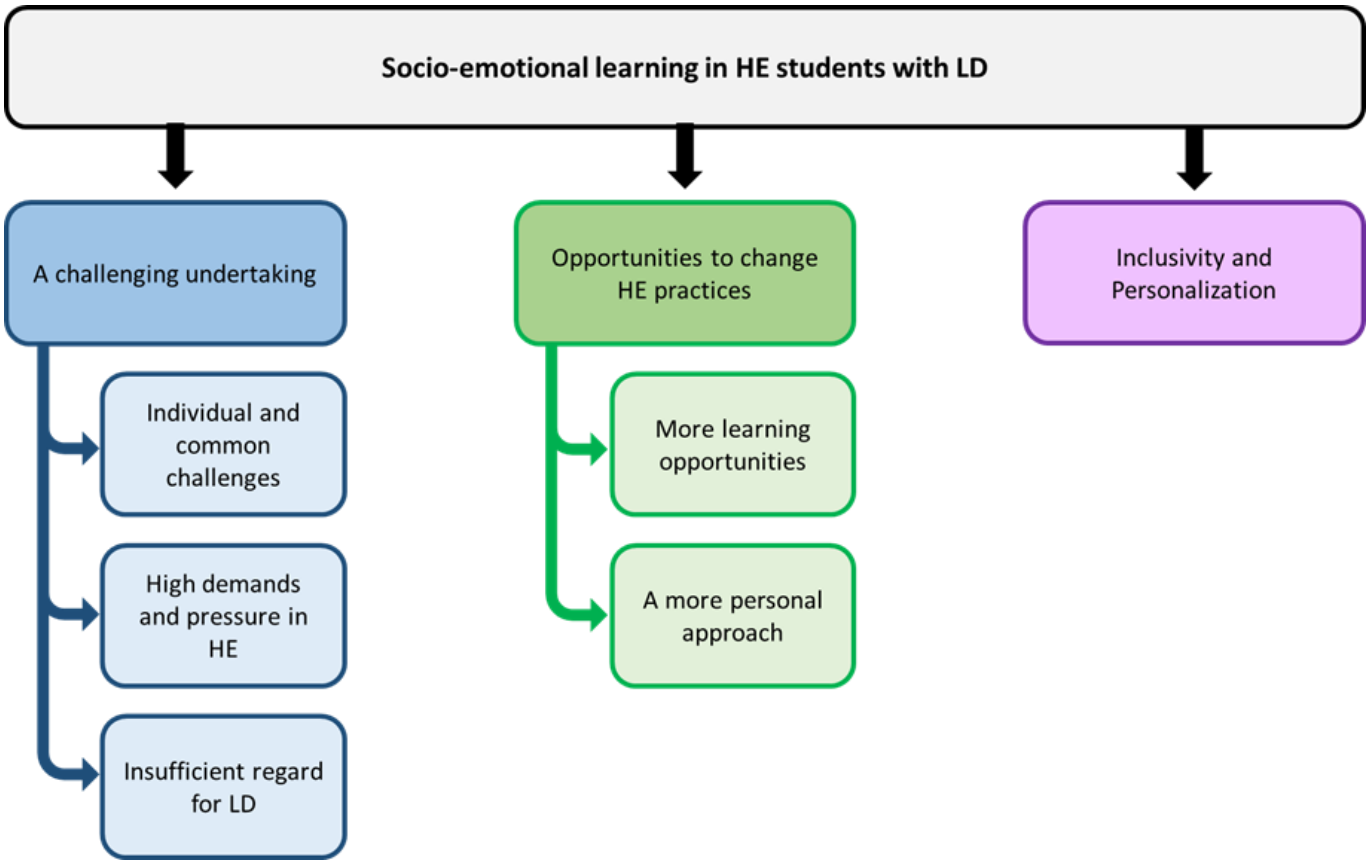


Figure 2. Summary map of the focus group findings on SEL in HE students with LD

Survey

1. Aim

Complementary to the literature evidence from the systematic review and the qualitative evidence from the focus groups, a survey was completed to quantitatively investigate the feasibility and effectiveness of specific teaching methods to enhance SEL in HE.

More specifically, the goal of this survey was to gain insight in (1) which socio-emotional skills are particularly difficult to train in HE students with cognitive LD, and (2) the extent to which specific traditional and innovative teaching methods are feasible and helpful to train socio-emotional skills in HE students with cognitive LD.

2. Methods

2.1. 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 (VUA, UCY, UOC and ELTE). Ethics approval for the latter was obtained at the VUA.

Participants recruited via crowdsourcing were pre-screened using the following criteria in Prolific. Prolific participants were included when they reported to be an undergraduate student with literacy difficulties (responding 'Yes' to the question "Have you been diagnosed with Dyslexia, Dyspraxia or ADHD, or aware of having any related literacy difficulties?"). This resulted in about 931 eligible participants (of 118.532) at the moment of recruitment on the Prolific platform.

In total, 127 students completed the survey, of which 20 through partner recruitment and 107 through recruitment via Prolific. Of the 107 Prolific participants, 7 participants failed both attention checks in the survey, and 6 participants failed one of the two attention checks. This resulted in a total Prolific sample of 94 participants and a total student sample of 114 participants for analysis. Sample demographics are presented in Table 10.

Table 10.
Demographics

	Mean	SD
Age	24.947	6.945
Socio-economic status (1-10)	4.947	1.661

	N	%
Gender		
Agender	3	2.632
Genderfluid	2	1.754
Man	47	41.228
Non-binary	7	6.140
Questioning or unsure	1	0.877
Woman	53	46.491
Other	1	0.877
Prefer to not disclose	0	0.000
Study year		
Bachelor year 1	30	26.316
Bachelor year 2	32	28.070
Bachelor year 3	28	24.561
Bachelor year 4	16	14.035
Master	7	6.140
Missing	1	0.877
Learning difficulties		
Yes	100	87.719
No	14	12.281
Domain of learning difficulties		
Speaking	23	20.175
Reading	38	33.333
Writing	24	21.053
Spelling	26	22.807
Other language difficulties	6	5.263
Mathematical calculations	37	32.456
Listening	35	30.702
Thinking	21	18.421
Attention	93	81.579
Memory	57	50.000
None	4	3.509
Other:	16	14.035
Mentioned by participants: focus and concentration, auditory processing, comprehension and understanding, and spatial reasoning		

	N	%
Country of study		
Australia	1	0.833
Canada	3	2.500
Chile	3	2.500
Cyprus	1	0.833
England	3	2.500
Germany	4	3.333
Greece	7	5.833
Hungary	8	6.667
Italy	3	2.500
Latvia	1	0.833
Mexico	7	5.833
Netherlands	6	5.000
Northern Ireland	2	1.667
Poland	14	11.667
Portugal	9	7.500
South Africa	2	1.667
Sweden	1	0.833
Switzerland	1	0.833
UK	17	14.167
USA	19	15.833
Wales	2	1.667

2.2. Materials

The survey (in Appendix 7) consisted of demographic information, five closed questions, and four open questions. Each of the five closed questions was assessed on a 5-point Likert scale (not at all, slightly, moderately, very, extremely).

Three closed questions aimed to assess the degree to which (1) it is challenging to train specific socio-emotional skills using traditional text- and language-based teaching methods, (2) it is helpful to train specific socio-emotional skills using digital teaching methods, (3) it is helpful to train specific socio-emotional skills using creative teaching methods including music-based teaching methods in HE students with cognitive LD. For each question, five socio-emotional skills (deriving from the CASEL framework; https://casel.org/fundamentals-of-sel/) were evaluated: self-awareness, self-management, social awareness, relationship skills, and responsible decision making.

Another two closed questions aimed to assess the degree to which specific traditional and creative teaching methods are helpful (4) and feasible (5) to enhance SEL in HE students with cognitive LD. For each question, the following 15 teaching methods were evaluated:

1. psychoeducation,
2. skills training,
3. lectures / plenary / large classroom teaching,
4. textbook learning,
5. interactive small group activities (workshops, role-playing, discussions),
6. experiential learning (e.g. problem, team or project-based learning, community service learning),
7. coaching, mentoring, counseling or individual training,
8. technology supported learning (digital or e-learning),
9. arts and music based learning,
10. peer group training,
11. instructor-led training,
12. self-training,
13. online training,
14. face-to-face training, and
15. blended training.

Open questions assessed (1) whether SEL in HE should be taught inclusively, (2) what facilitates SEL in HE students with cognitive LD, (3) what hinders SEL in HE students with cognitive LD, and (3) what other teaching methods may be advise to teach SEL in HE students with cognitive LD.

3. Analyses

Two-sided one-sample t-tests were performed to test whether ratings significantly differed from the midpoint of the scale (3; moderately), to test statistically

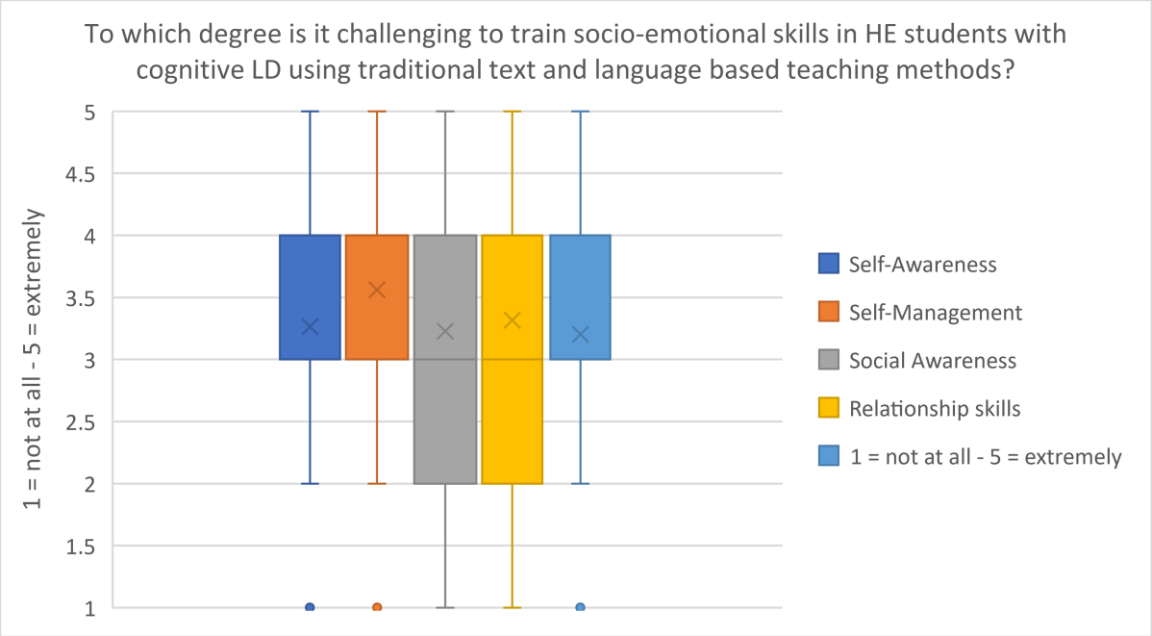
(1) whether specific socio-emotional skills are considered to be less/more challenging to train using traditional text and language based methods in HE students with cognitive LD, for closed question 1,
(2) whether digital/creative teaching methods are considered to be less/more helpful to train socio-emotional skills in HE students with cognitive LD, for closed questions 2 to 3.
(3) whether specific teaching methods are considered to be less or more helpful/feasible to teach socio-emotional skills in HE students with cognitive LD, for closed questions 4 to 5.

Because of the exploratory nature of this survey, the significance threshold was set at $\alpha=0.05$, despite the large number of tests performed. Data are visualized by means of boxplots.

4. Results

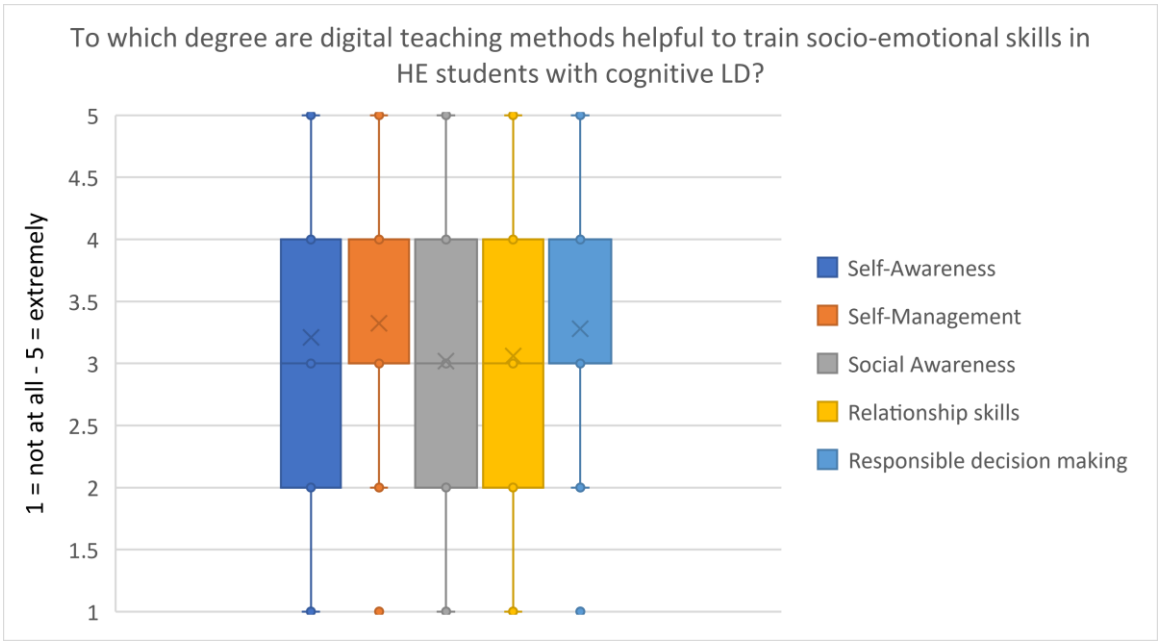
5.1. Which socio-emotional skills are challenging to train in HE students with cognitive LD using traditional text and language based teaching methods?

Students indicate that all socio-emotional skills are difficult to train in HE students with cognitive LD using traditional text and language based teaching methods (self-awareness, $p=0.002$; self-management, $p<0.001$; social awareness, $p=0.021$; relationship skills, $p=0.003$, responsible decision making, $p=0.038$).



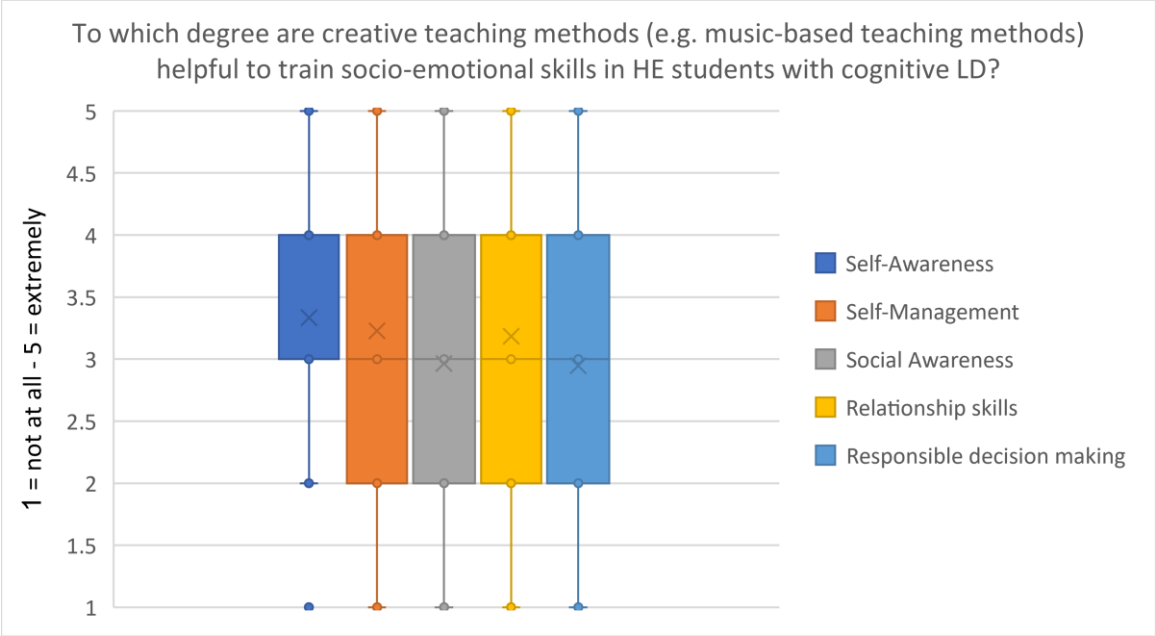
5.2. Are digital teaching methods helpful to train socio-emotional skills in HE students with cognitive LD?

Digital teaching methods (including apps, online platforms, virtual or augmented reality) are considered to be helpful to train self-awareness (p=0.025), self-management (p=0.001) and responsible decision making (p=0.002). There was no evidence that digital teaching methods are helpful to train social awareness (p=0.859) and relationship skills (p=0.563), in HE students with cognitive LD.



5.3. Are creative (e.g. music-based) teaching methods helpful to train socio-emotional skills in HE students with cognitive LD?

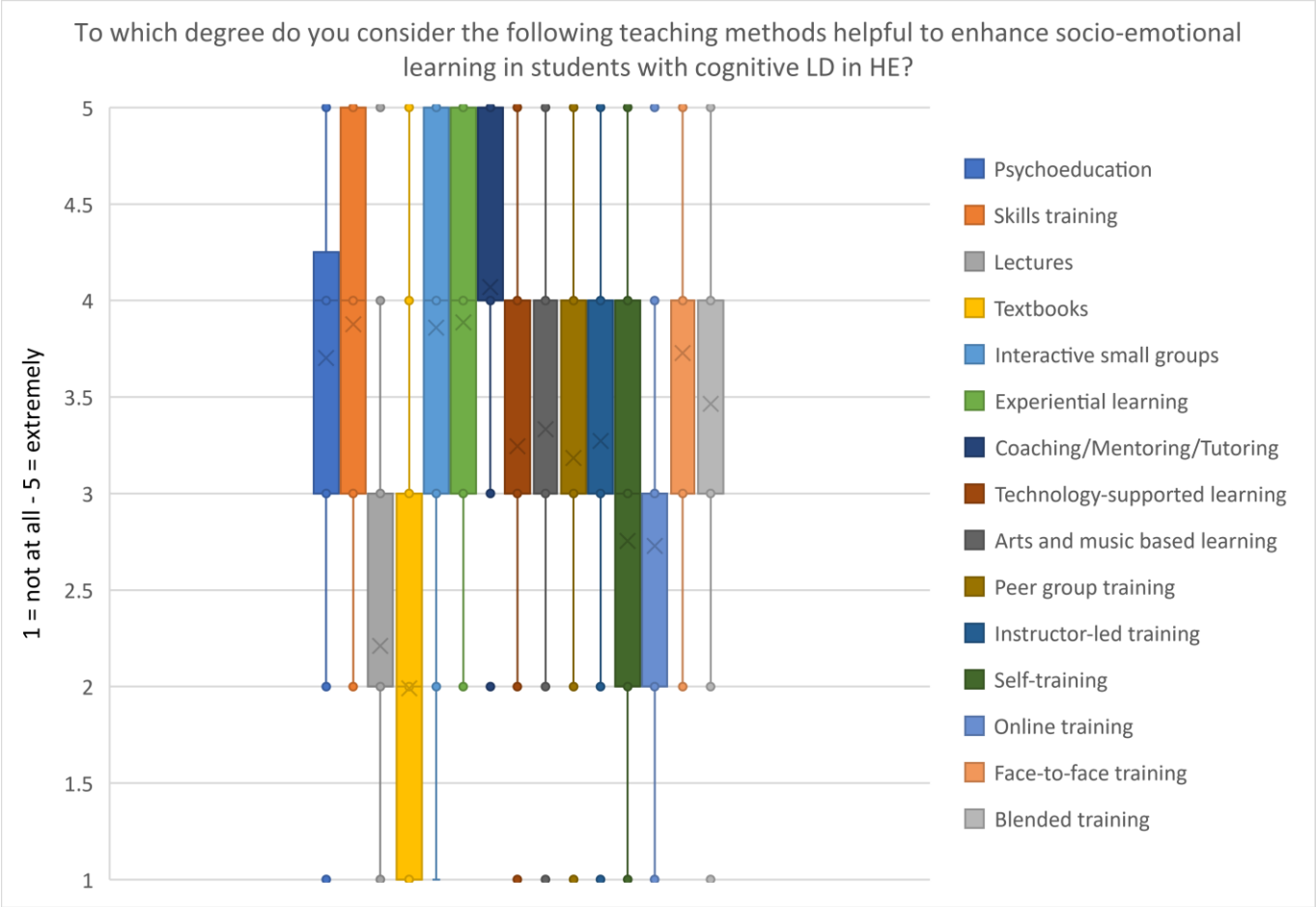
Creative teaching methods, such as music-based teaching are considered to facilitate the training of self-awareness (p=0.001) and self-management (p=0.031). There was no evidence that creative teaching methods are helpful to train social awareness (p=0.714), relationship skills (p=0.088) or responsible decision making (p=0.609), in HE students with cognitive LD.



5.4. Which teaching methods are helpful to enhance SEL in HE students with cognitive LD?

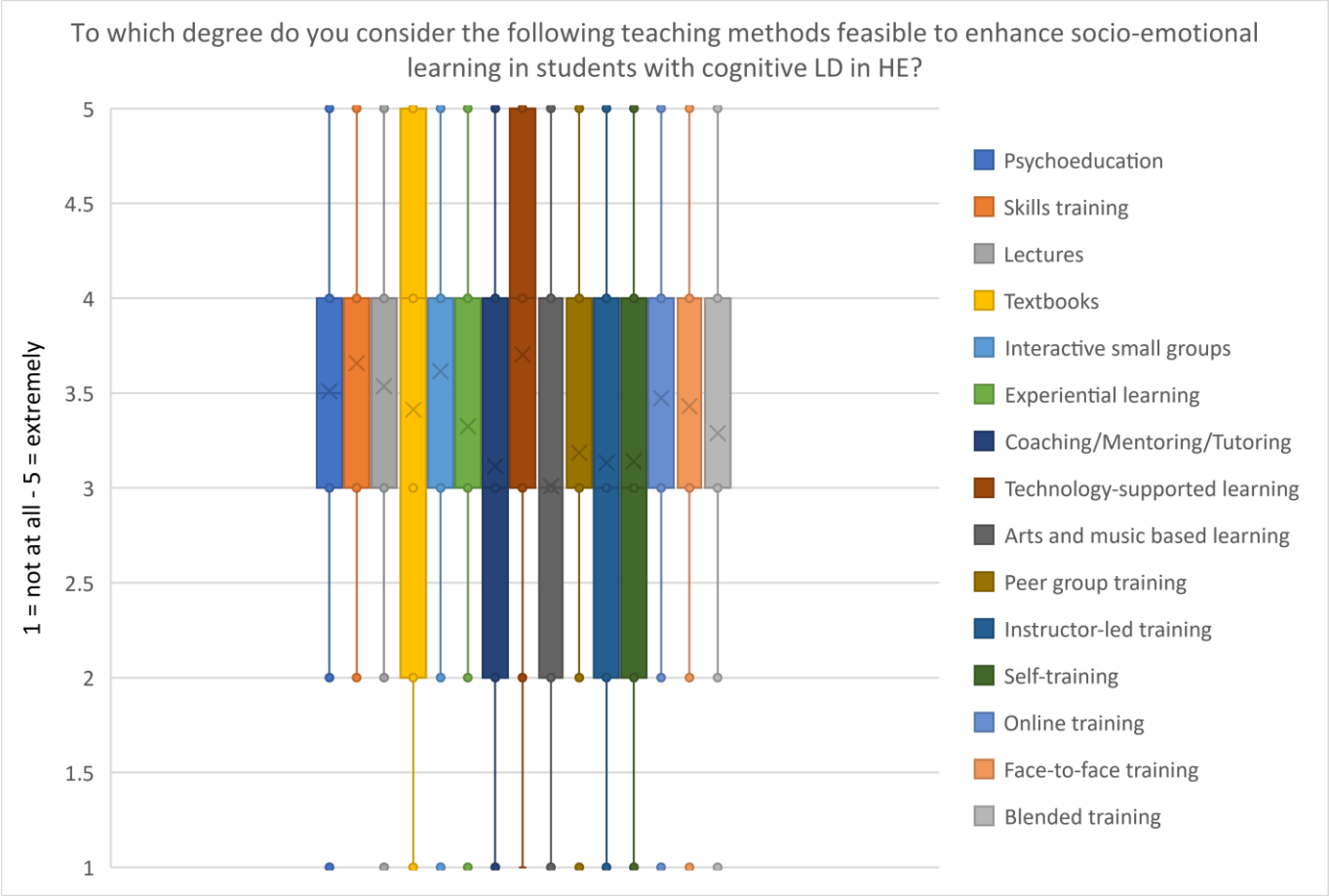
Teaching methods that are reported to be helpful in developing socio-emotional skills in HE students with cognitive LD are psychoeducation (p<0.001), skills training (p<0.001), interactive small group teaching (p<0.001), experiential learning (p<0.001), coaching/mentoring/tutoring (p<0.001), technology- (p=0.008) and arts-based teaching (p=0.002). Also peer training (p=0.025), instructor-led training (p=0.001), face-to-face (p<0.001) and blended learning (p<0.001) are considered helpful to enhance SEL in HE students with cognitive LD.

On the other hand, lectures and large classroom teaching (p<0.001), textbook learning (p<0.001), self-learning (p=0.021), and online learning (p=0.003), are considered to be less helpful for the enhancement of SEL in HE students with cognitive LD.



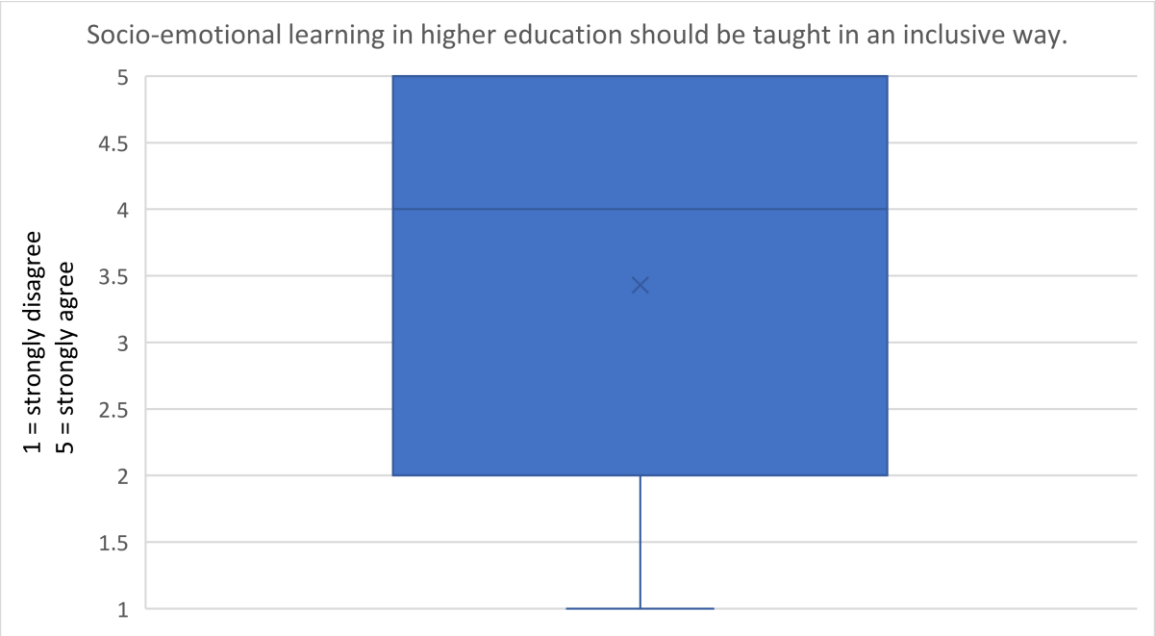
5.5. Which teaching methods are feasible to enhance SEL in HE students with cognitive LD?

Students consider all teaching methods (all $p<0.001$) to be feasible to enhance SEL in HE students with cognitive LD.



5.6. Should SEL be taught inclusively?

Overall, students agree with the statement that SEL should be taught in an inclusive way in HE (p=0.002).



5.7. Barriers and facilitators of SEL in HE students with cognitive LD

The most common reported facilitator of SEL in HE students with cognitive LD is more personal education and support (including individual or small group education, and mentoring or coaching). Also, a supporting environment, acceptance, understanding and willingness to help, of fellow students and teachers, is indicated as an important enabler to enhance SEL in HE students with cognitive LD.

Students indicate that more innovative and creative teaching methods, but especially more time to absorb information and practice skills, are required to improve SEL in HE students with cognitive LD.

5.8. Suggestions for other teaching methods

Most students indicated they could not think of suggestions for methods to teach socio-emotional skills, other than the ones mentioned in the survey before. Some students repeated teaching methods consistent with the pattern of results. Some students emphasized again the importance of more innovative and creative teaching methods. One student highlighted the importance of evidence-based teaching methods.

Suggestions for additional teaching methods included visual learning, game-based learning, kinetic-based learning (using movement, for example during breaks) and daily emotion check-ins.

5. Conclusion

Overall, results are consistent with the idea that traditional, text-based teaching methods in HE do not serve SEL well in students with cognitive LD. More creative and innovative education methods are essential to enhance SEL. While music-based teaching methods are considered helpful to train self-awareness and self-management, digital teaching methods are considered beneficial to train self-awareness, self-management and responsible decision making.

More personal (interactive small group teaching, coaching/mentoring/tutoring, peer training, face-to-face and blended learning), practice-based (skills training, experiential learning) and creative (technology- and arts-based teaching) methods are thought to improve SEL in HE students with cognitive LD.

Finally, students overall agree that socio-emotional skills should be taught in HE in an inclusive way.

Integrated findings

Below, we integrate the findings of the systematic review, focus groups and survey to better understand how socio-emotional learning in HE can be improved in a more inclusive way.

1. Which socio-emotional skills are particularly challenging to train in HE students with cognitive LD?

While important individual differences exist in socio-emotional abilities of HE students with LD, the focus groups revealed that specific socio-emotional skills are difficult to train in HE students with cognitive LD, which are related to their LD.

LD students require specific resources and support to thrive in HE. Communicating those needs is therefore a skill that is pertinent to students with LD, but requires specific socio-emotional skills, such as self-awareness and assertiveness. What may further complicate the communication of needs is the feeling of being a burden and inconvenience.

As students with LD require more time and effort to complete all sorts of tasks, time management and planning are essential, but these seem particularly challenging for students with LD. Additionally, difficulties in comprehension of information challenges important analytical skills, such as critical thinking, problem solving, and decision making.

Further, intricate socio-emotional skills that require basic socio-emotional skills and extensive practice are difficult. For example, emotion regulation, empathy and stress management are intricate skills that require self-awareness, interpersonal awareness, and planning and organization, respectively.

Additionally, the survey revealed that not only these, but all socio-emotional skills are difficult to train by means of traditional text- and language-based teaching methods. Below (see 4.), we will describe which teaching methods may be more appropriate for SEL in HE students with cognitive LD.

2. Which interventions are effective to enhance socio-emotional skills, mental health and academic performance in HE students with cognitive LD?

The efficacy of various intervention types has been studied in HE students with cognitive LD. These intervention types include interventions based on cognitive-behavioural therapy (e.g. traditional CBT, dialectical behaviour therapy, CBT-inspired skills training), other (non-CBT) psychosocial interventions, mind-body awareness interventions (e.g. mindfulness, biofeedback), and counseling, mentoring or tutoring.

CBT-based interventions are the most commonly studied interventions in students with cognitive LD in HE, and, overall, are associated with an improvement of socio-emotional skills. Also psychosocial interventions without CBT components, and counseling, mentoring and tutoring are associated with the development of socio-emotional skills. Evidence for the efficacy of these interventions on mental health and academic performance is scarce and less convincing (due to more mixed findings). The very few studies on mind-body interventions show the opposite pattern of results, as they seem more related to an improvement in mental health than associated with the development of socio-emotional skills.

3. What are facilitators and barriers of socio-emotional learning in students with cognitive LD in a HE setting?

Both the focus groups and survey suggest similar barriers and facilitators for SEL in HE students with cognitive LD. First, HE students with LD indicate that they would benefit from more time to absorb information, to complete tasks and exercises, and to practice skills. The wish for more time to process information and practice skills in depth is in conflict with the current dynamic in HE. Both students and staff experience high demands and pressure. Students report to have insufficient time to engage in other activities than those integrated in the curriculum, such as personal development, and staff report to have insufficient time to revise and to innovate education practices, e.g. to implement SEL.

Second, HE institutes show insufficient regard for LD. There is a lack of awareness, knowledge and understanding of LD among HE staff and peers. Additionally, resources and support for LD are inadequate, as they are insufficient, slow, impersonal and not necessarily helpful. Students ask for a more supporting environment with more acceptance and understanding of LD, openness to facilitate the learning process of students with LD, and more personal education and care.

4. Which education practices are helpful and feasible to enhance socio-emotional learning in HE students with cognitive LD?

While students with LD indicate that all education practices and teaching methods are feasible to enhance SEL, specific education practices and teaching methods can reduce barriers for SEL and facilitate SEL. Similar suggestions have been proposed in the focus groups and survey. Students with LD agree that more learning opportunities are required to improve SEL. These include more opportunities to prepare, practice and evaluate. Consistent with this, psychoeducation, skills training and experiential learning are suggested to be useful practices to enhance SEL.

Additionally, students with LD indicate that learning can be improved by a multitude of methods to learn the same skills. For example, visualizations and animations that complement texts and words can improve learning. Technology-based or digital methods, such as apps, online platforms, and virtual reality, are thought to be helpful for the development of self-awareness, self-management and responsible decision making, specifically. More creative methods, such as arts- and music-based teaching methods are considered to be useful for the development of self-awareness and self-management.

In addition to more learning opportunities, SEL in students with LD would benefit also from more personal education approaches. Students with LD suggest that face-to-face or blended learning in interactive, small groups would improve SEL. Also coaching, mentoring, and tutoring with a personal coach, mentor or tutor who creates a safe space for SEL would be beneficial for SEL in students with LD.

5. Should socio-emotional skills in HE be taught in an inclusive way?

Both the focus groups and the survey showed that there is agreement that SEL should be integrated in HE in an inclusive way, independent of LD. However, the focus groups revealed that, ideally, education of socio-emotional skill is tailored to the students' development needs and wishes, allowing for more personal growth, regardless of the presence of LD.

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Anna Touloumakos	UOC	focus group, focus group analysis and focus group report
Jonáh Stunt	VUA	focus group moderation
Lilien Nagy	ELTE	focus group analysis

All research participants

Appendices

Appendix 1: Focus group interview guide

- **Engagement question**
  - Introduction of SEL:
    - If you think of social and emotional skills, which skills come to mind?

    Let participants write on a Jamboard.

    Check the skills they mention and add where necessary if categories are missing:

    For example: the 5 CASEL categories with some examples for each category:

Self-awareness	Self-management	Social awareness	Relationship skills	Responsible decision making
• Values identification • Self-efficacy • Growth mindset	• Emotion regulation • Stress management • Goal setting • Planning	• Perspective taking • Empathy • Recognizing strengths in others	• Communication • Team work • Conflict resolution • Intercultural awareness • Assertiveness	• Critical thinking • Decision making • Problem solving • Analytical skills

End this discussion with a definition of SEL, so all participants are on the same page about what SEL is.

For example: CASEL definition:

"*SEL is the process through which all young people and adults acquire and apply the knowledge, skills, and attitudes to develop healthy identities, manage emotions and achieve personal and collective goals, feel and show empathy for others, establish and maintain supportive relationships, and make responsible and caring decisions.*" (https://casel.org/fundamentals-of-sel/)

  - Challenging skills to train in learning difficulties
    - When being trained in socio-emotional skills, which are particularly difficult to learn for students with learning difficulties, and why?

- **Exploration questions**
  - Questions about barriers and facilitators for HE students with learning difficulties
    - What hinders SEL in HE for students with learning difficulties?

      What makes it difficult for students with learning difficulties to participate and engage with SEL?
    - What can facilitate SEL in HE for students with learning difficulties?

      How can we increase participation and engagement of students with learning difficulties in SEL initiatives?
  - Questions about inclusivity of SEL

- Should SEL training be offered in an inclusive way (i.e. the same way for all students with different backgrounds and abilities), or in a specialized, personalized way (i.e. specific to students' background and abilities)?

  Can SEL be taught in an inclusive way?
  How can SEL be taught in an inclusive way, including students with and without learning difficulties?
  Who should teach SEL for students with and without learning difficulties?

- **Exit questions**
  - Is there anything further you would like to discuss that we did not ask you regarding the topics we discussed today?

Appendix 2: Focus group findings VUA

Thematic map & overall conclusion:

Thematic analysis resulted in the thematic map below (Figure 3). Socio-emotional learning in higher education (HE) students with learning difficulties (LD) poses important challenges. One key challenge is that processing information takes much more time and effort in students with LD than other students. While students recognize this challenge consistently, lecturers seem to know little about LD and LD challenges, and resources and support provided by the university are too limited. Yet, students with LD give clear indications on what may facilitate learning, and socio-emotional learning specifically. Students with LD would prefer more opportunities to learn, including the opportunity for multimodal processing of information, preparation and practice, small group teaching and frequent deadlines. Additionally, personal tutoring is preferred which allows for a safe space and a close relationship with a tutor. Finally, students and lecturers agree that inclusive teaching of socio-emotional skills would benefit all students.

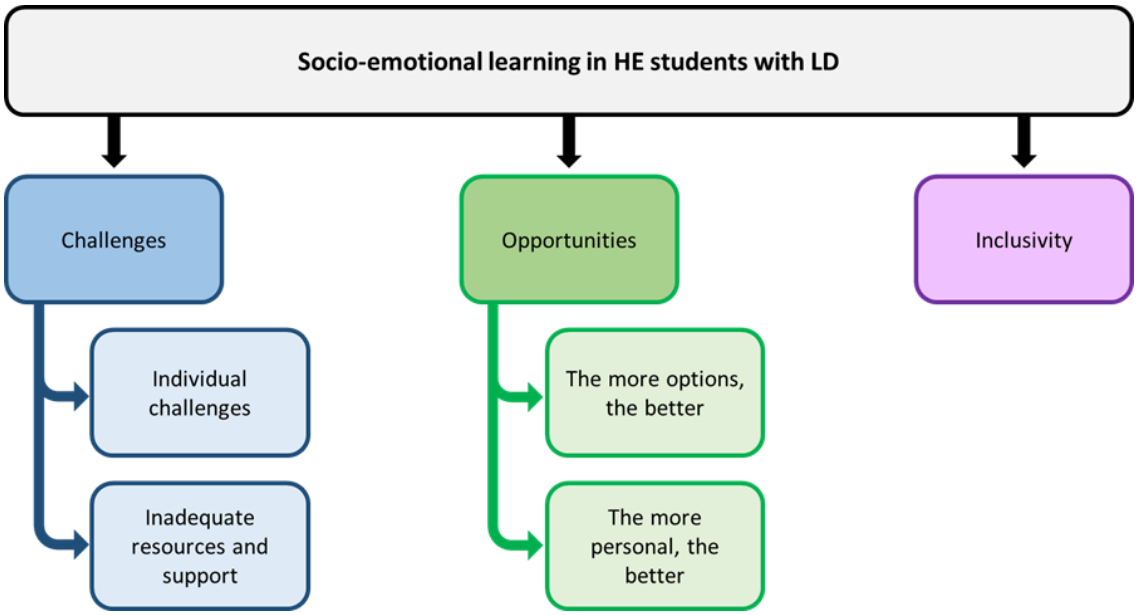


Figure 3. Thematic map of VUA findings

1. Which SEL skills are challenging to train in HE students with LD?

Theme: Individual challenges

While students with LD understand well what is more challenging for them, lecturers indicate that they have little experience with LD and are unsure which challenges relate to LD. Students with LD identify that the extra time and effort it takes to complete tasks, are the most challenging. However, a variety of SEL skills are experienced as difficult by students with LD, and not all students with LD experience the same skills as difficult.

1.1. It is unclear to lecturers which skills are challenging for LD

Lecturers feel that they lack experience and understanding of challenges in students with LD.

> *SEL lecturer: I think I don't have much experience with the students with learning difficulties, but what I've seen is that those skills that require more practice are more difficult. So maybe self-awareness and social awareness are easier than, for example, stress management or emotion regulation, that maybe if you see in a lesson, [you think] what does it mean? Maybe they can cognitively understand what it means, but they actually [have to] do it. It takes just more time and more practice. So but I'm not sure [whether] that relates to learning disabilities.*

One lecturer assumes that communication and cooperation are difficult because of the extra needs of students with LD, and the challenge to communicate those needs.

> *SEL junior lecturer: So in general, I think communication and cooperation is quite hard. I think everyone recognizes a situation where the communication or the cooperation was quite hard. But I think especially for students with learning disabilities it can be harder to communicate what extras they need or I don't know if I'm [right]. So I can imagine that students have different needs and that it's not the same as the needs that other students have, and they have to be more clear. And the communication and the cooperation on what they need or what they want and that that makes it they need a higher level of thinking about what they need. So more reflectiveness and also better communication about what they need or what they want.*

However, the students with LD nuance this assumption, and indicate that personal skills are more challenging than interpersonal skills.

> *LD student dyslexia: I think it's a little bit different, at least for [me], I don't know how it is for [everyone] (...). In terms of like these skills, I feel for me at least the ones that are within yourself, I find more difficult than the ones that are to do with other people. Like, I don't have a problem with communicating with people or anything like that, but then stuff that I have to do on my own just takes longer or requires more effort. But then if I've done it before, then working in a group or like trying to explain what I have done isn't really like a problem or anything. So the personal skills I feel are more difficult.*

1.2. Tasks require more time and effort

Students with LD realize that they can do everything, but tasks take longer and require more effort. Tasks take longer for students with LD because it is more difficult for them to focus attention, they require more time to process information and they need more practice to learn and apply skills.

> *LD student dyslexia: It's not that I can't do it or that I don't know how or what, it just takes me like way longer than they would take the average person to do. So I can do it. I just need more time to do it. So I don't ask for help because I can get it done and just need a little bit more time to do it.*

1.3. Critical evaluation and decision making based on comprehension is difficult

Especially when it is difficult to comprehend the available information, it is difficult to think critically about the provided information, and to make decisions accordingly, which are important learning outcomes in HE.

> *LD student dyslexia: So if you don't really know what it means because you're not understanding, because it's harder to comprehend, then you can't make a good critical decision on it as how other students would be able to do it.*

1.4. Team work raises both challenges and opportunities

Team work is experienced as difficult by students with LD because of several reasons. They experience a lot of pressure to perform well for the group, to meet group expectations and to meet group deadlines. Insecurities are high, especially when students with LD feel that other group members may have better skills. Also it seems difficult to take the lead in a group.

On the other hand, sometimes group work can provide structure and can help to set expectations.

> *LD student ADHD: It's always harder when working with a group because you have this pressure to, you know, you're not doing it for yourself, you're doing it for a group. You have the pressure to meet, to have to do it better, to have to do it like how the rest of the group expects you to do it rather than doing things in your own way.*

> *LD student combined: working in a team, it's easier for me to complete my assignments, for example, or focus on one doing one thing because everyone is doing the same thing. So you kind of relate to that. But then when you're on your own, it's kind of hard for me to focus and give my full attention to something that needs to be completed by a certain deadline, for example.*

2. What hinders SEL in HE students with LD?

Theme: Inadequate resources and support

Students with LD discuss that only very limited resources are available, and applying for these requires a lot of effort, and the process is slow, while these resources are not at all very helpful. They feel like a burden.

2.1. Insufficient resources and support are available

Registering a learning disability requires a lot of paperwork, and the process is very slow. The only accommodation for students with registered LD is extra exam time. Aside from that, no other resources exist for students with registered LD. So no resources related to learning are available. Connecting to a study advisor is difficult, and the process of connecting to a study advisor lacks a personal approach.

> *LD student dyslexia: For me it was that I wanted to contact the study advisor at the beginning of the year because I didn't know what university would be like. I didn't know if I was going to need more help or not. So when I began the process of handing in all the paperwork and stuff, they were like, once this has gone through and you're registered to have this at the school, you can go see your study advisor and talk about or whatever and see what you need to do. But then they still haven't processed it like it's still not complete. So I haven't spoken to the study advisor.*

> *LD student ADHD: I've had an appointment with the study advisor already, but I personally didn't find it helpful because again, it was kind of going through the steps like, okay, so what you can do if you have like a doctor's note is that you can get extra time for the exam. But things like this, it's not really a personal approach on how to deal with it or anything. It's really something you contact. That was my personal experience. I didn't find it quite useful and it wasn't. It wasn't really a place where I could go again for months because they were kind of detached, I guess, from the academic side. So yeah, for me it didn't really help much.*

2.2. Asking for help feels like an inconvenience

Students with LD feel like asking for help is a hassle, and is bothering and inconveniencing people. Therefore, they find it difficult to ask for accommodations. It seems to them more difficult to ask for help than sorting things out on their own. Mostly, students with LD do not disclose their LD because they do not want people to see them as their problem. Only when their daily functioning becomes problematic, they choose to share their LD.

> *LD student dyslexia: They say there's like, Oh, there's the counselor, there's this, this and that. But then it's kind of like really a hassle to go through it and like actually go through and ask for the help. And then you feel like you're inconveniencing people by asking for it.*

2.3. The available support is not always helpful

Accommodations for students with LD are only exam-based, not learning-based. The only accommodation students with LD can apply for is extra exam time (30 minutes extra), which they don't experience to be particularly helpful, given that the standard exam time is already very long.

> *LD student combined: Yeah, I feel like so far I only know one option is that like your exams, depending on which exam you take and how long it is, you get like extra time with like 15-30 minutes at it. But our exams are already pretty [long] like for me at least. There's already a like pretty long time given: 2 hours and a half in most cases. So for me it's not really useful to even apply for extra time. So I haven't yet. But other than that, I don't know any other resources that are offered to people with learning difficulties.*

3. What facilitates SEL in HE students with LD?

Theme: The more options, the better

Overall, students with LD indicate that interesting and relevant content, and high motivation, are essential to facilitate the learning process. In addition, it is important to discuss different ways of learning when designing courses. Providing more methods and tools for studying, allows students to select what works best for them for a specific course.

3.1. A multitude of tools is key to improve learning opportunities

Students with LD agree that providing different methods and tools to consume the same information is very helpful. This way, students can choose whatever method works best for them, for each course, as each course requires different skills and each student has different learning approaches.

Lecturers agree that different learning methodologies and different types of education activities may be helpful. One suggested education format that advises a multitude of teaching methods is Universal Design for Learning.

> *LD student ADHD: But I think just having a multitude of options [works], because I find for different courses, different things work. (…) So it's just nice having multiple, multiple options.*

Inclusive education adviser: It's called Universal Design for Learning (...) So you can actually make your lessons and your lectures in the form so that everybody can follow your lectures at their own pace and what they need.

3.1.1. Visualizations and animations are helpful resources when explained well

Students with LD explain that textbooks often have too many words and information. When lecturers talk without any supporting visuals, often the words go over their head. Presentation slides often have too little detailed information. Therefore, visuals, such as diagrams, animations, videos, supplementary and consistent with text and words are helpful. Especially stepwise learning by animations in which the visuals are explained step-by-step are helpful.

LD student dyslexia: I think what works best for me is diagrams, especially. So rather than like explanations in words to just see it or to see them next to each other, it's a lot easier to understand that way. And it requires a lot less like brainpower to process what it means.

3.1.2. Lecture recordings are helpful

Especially the combination of live and recorded lectures is helpful. Recorded lectures are particularly helpful in case of inattentions during the live lecture. However, university policy is to not record lectures anymore in order to stimulate physical presence during live lectures. However students with LD experience this as an unfair punishment.

LD student ADHD: For me, I find it hard to ask teachers for things where they feel like they're not accommodating on purpose. For example, I've always liked to have recorded lectures as well as in person. I always go in person, but I also like to have the recorded lectures in case I missed something or something because of inattention sometimes. But I feel like often teachers are like, No, that's not possible because our goal is to have as many students come to the lectures as well. But so it's kind of like a punishment to not. So then it's hard to reach out to and ask for this extra support.

3.2. More opportunities to prepare and practice

Allowing the opportunity to prepare lectures or work groups, is helpful to process information more easily. Therefore, making materials accessible in advance would be beneficial for students with LD. Similarly, the opportunity to practice and apply theory in real life applications in practicals is helpful. It is disappointing to students with LD that practicals or work groups are reduced because of high student numbers or only few students showing up for these, as they are helpful to the few students that do attend.

LD student ADHD: So a lot of the time we have work groups that are canceled or we have things removed from the schedule just because there were too many to accommodate. But the thing is, I know for a lot of students, they. They don't want to travel so far. They don't they don't mind that these work groups are canceled. But I think for other students, they would still appreciate [the work groups]. Especially for me, I know I enjoyed the work of having this close contact, being able to go through the information again slower. And I think that just having it as an option, even if it's not mandatory and not accommodating to everyone, because not everyone wants to go to this, but then it's a possibility to have [them] as an option.

3.3. More deadlines provide more structure

Deadlines are helpful as they provide structure and help with time management. For example, more partial exams are easier to take on than one extended exam for students with LD.

Theme: The more personal, the better

Students have a strong appreciation for a personal approach in education. Especially for SEL, relatedness is essential. Connections between students and teachers can be enhanced by small group teaching, personal tutors and a safe space for sharing (learning) experiences.

3.4. Small groups

Small group teaching in work groups or practicals have a lot of important advantages over large classrooms or lectures. Small physical work groups allow more direct contact and connection with the teacher and the opportunity to ask questions and to process the information again but slower. They also enable contact with peers, learning from peers and sharing of experiences between peers.

> *LD student ADHD: I know for me, for me specifically, the smaller classroom, it's definitely better having the direct, direct contact with the teacher.*

3.5. Relatedness of a tutor is more important than expertise

Both students and lecturers agree that ideally students are taught by an expert in the field of education or tutored by a specialist in LD, who also connects to students and creates a safe space for sharing. Especially for SEL, relatedness is essential, as SEL is "putting yourself out there".

> *SEL junior lecturer: Yeah, I think that's quite a hard question because I think there are multiple sides. So on the one hand I feel that you need certain skills or certain capabilities to guide or to help them with this process and to help students with learning disabilities. So you need certain skills and I'm not really sure if all tutors or if I have them. So I feel like that it would be very good if someone was specialized in facilitating students with learning disabilities. On the other hand, I also noticed that I'm very close with my students so they know me. I know them, and it's like a safe space we have. And that makes the conversation about learning and social development and emotional development and about the struggles they have much easier. So I feel like on the one hand, they deserve someone who knows how to guide them, has a lot of time for that, is educated in training, social skills and emotional skills. On the other hand, they also deserve a safe space, and that's the thing that I can offer them.*

3.5.1. A safe space

A safe space makes it easier to talk about difficulties, and is essential to discuss SEL struggles. Especially tutors are well equipped to create a safe space for students and open up more difficult conversations. In this safe space, the connection and sharing with other students is very important in the learning process.

Disruptions of this safe space make it difficult to put yourself out there, generate a high threshold for participating and sharing in SEL activities, create feelings of embarrassment and bring down the whole group. Disruptions are often due to unmotivated or non-participative students.

> *LD student ADHD: I think especially in this kind of situation where like if you're talking about social emotional skills, I think it gets quite personal. So you're really putting yourself out there. So if you are in a group with people who don't relate, they don't really want to be here. They're waiting, waiting for the class to be over. And I think it's especially hard to put yourself out there in this situation. And then I don't think you're gaining much from them, just shame.*

3.5.2. A personal tutor

To students with LD, a personal tutor would have many advantages, especially when experiencing difficulties or in case of significant changes.

A personal tutor who students can reach out to at any time, and reverse, who can reach out to students at any time, would be ideal. A personal tutor who really gets to know the students, can have tailored discussions, notices progress, holds students accountable and puts grades in perspective. Confidential personal tutor meetings would stimulate honesty, and students would want to show the tutor progress and make them proud.

Ideally, students can choose a tutor they can relate to and are on the same wavelength with (i.e. "click with"), and that can create that safe space for them.

Students also indicate that this initiative for tutoring should be with the university rather than the students.

> *LD student combined: I wanted to say that one thing that really helped me get through high school and just open up about my mental state and everything was and except my disorders obviously was not like obviously they were voluntary. If you don't want to meet your tutors at all. But for me, they were kind of mandatory meetings with my tutor one on one where everything is confidential so nothing goes to my parents. I can just be really straightforward with him. And it was like at least once a month, which really helped me get through my high school years and just understand that not getting one good grade does not mean that you're less smart or less than everybody else or something. So yeah, it really helped me. And I wish that we had this here as well, that it was also mandatory for students so that they could build this relationship with their tutor like an honest relationship so they can open up and their tutor would like to seek some kind of help for them if that's needed. (…) But it should also be a person's own choice because I feel like if it's the constant, like if the same tutor that the student needs and they just don't click in any way, the student just doesn't feel like sharing anything personal with that tutor or like the problems that they face. So I feel like it really should come to the student's choice, of which tutor should be [theirs]. But in any case, every tutor should be welcoming, obviously, and try to help.*

3.5.3. Experts are important but not always suitable

Specialists in LD have an important role for students with LD, as they can help figure out how to cope with LD as a student, and give advice on learning methods that may work for students with LD. However, talking to an LD expert often becomes a clinical situation with rights and wrongs. This is not beneficial in SEL. Therefore, an informal personal support person, or tutor, would be more desired.

> *LD student dyslexia: Because from my experience, when you have someone who you are talking to because you know you're talking about this specific topic of 'I have this learning disability' and 'we're together here to do something like work on it' or whatever. When you're in that situation, it kind of feels more clinical and like there's like a right and a wrong answer. And if, you know, that's what they're there for, I feel the conversation will stick very much just to that. But like she said, when the students have like there's other issues that students have as well, which you can talk to with the tutor, which you wouldn't be able to express with someone who, you know, is there to talk about this one specific thing.*

3.6. Dilemma between mandatory vs. elective SEL

Choosing between mandatory vs. elective SEL is difficult. When SEL is mandatory, disruptive students have a very negative influence on the group, and interfere with the learning of students who are eager to develop themselves more. On the other hand, exposing students to SEL and forcing them to reflect on SEL may help soften sceptical students a bit, and make them see the importance of it.

SEL lecturer: Yeah, I agree. I think it's also very difficult to find, like, the middle way on how to engage all students, but also give a specific, meet a specific need from students, and especially for those students that don't want to be there. But I think also only exposing them to the content sometimes helps. At least that's what I've seen and some students that at the beginning, it's not everyone, but at the beginning were a bit sceptical or not really into the topics and as the session continues, they start kind of soften a bit and, and seeing the use of reflecting or these types of skills. But I also see how that demotivates the other students and makes the sharing of personal things less, yeah less

4. Should SEL be offered in an inclusive way?

Theme: Inclusive and personalized

While there is agreement that inclusivity is the way to go, it is also emphasized that SEL requires an individualized, tailored approach to be maximally effective.

4.1. What helps LD, would help all students

Students and lecturers agree that SEL is important for all students and needs more emphasis, regardless of LD. Regarding methods of teaching, there is consensus that whatever helps students with LD specifically, would help all students in general. For example, more diverse teaching methods would help all students.

LD student ADHD: But I think that a lot of things apply generally to all students, even if it would help [students with learning difficulties] more maybe specifically. But I think there's a lot of tools that anyway, it would help everyone. And so. Yeah, it wouldn't have to be specific. The thing with having different options, having, you know, accommodating to everyone, whether it's social, emotional skills, a social emotional disability, or it's simply just a student that has different learning approaches.

4.2. A personalized approach

Despite the preference for inclusivity in HE, SEL also requires an individually tailored approach to maximize learning in all students.

LD student dyslexia: So if you just shove everyone in a box and teach it to everyone in the same way, there will be people that learn something from it. But then I think there's also going to be a large group of people that gain absolutely nothing from it because it's just not presented to them in a way that they can do anything with it.

Appendix 3: Focus group findings UCY

Data collected through a semi-structured focus group were thematically analysed (Braun & Clarke, 2006). The group was comprised of five participants including an academic staff member (P1), a mental health staff member (P2), a student representative with undiagnosed LD (P3), an alumni representative with undiagnosed LD (P4) and an administrative staff member (P5). The selection of participants was based on their relevance with the field of learning difficulties and development of socio-emotional skills.

Thematic analysis led to the identification of three themes organized in the thematic map found in Figure 4. The theme of *Creating a Supportive Environment* focused on the importance of having a supportive system, both with and outside higher education, to maximise the effectiveness of any training scheme implemented. This theme captured the shortcomings of the current system and ways they can be addressed, which are discussed in the three sub themes sustaining it. The theme *Choosing an Appropriate Design* captured discussions relating to the format of the training and the teaching methods that can be used. This theme was sustained by two subthemes. The theme *Teaching in an Inclusive Way* explored the importance of offering SEL training in an inclusive way, along with adaptations able to facilitate this format.

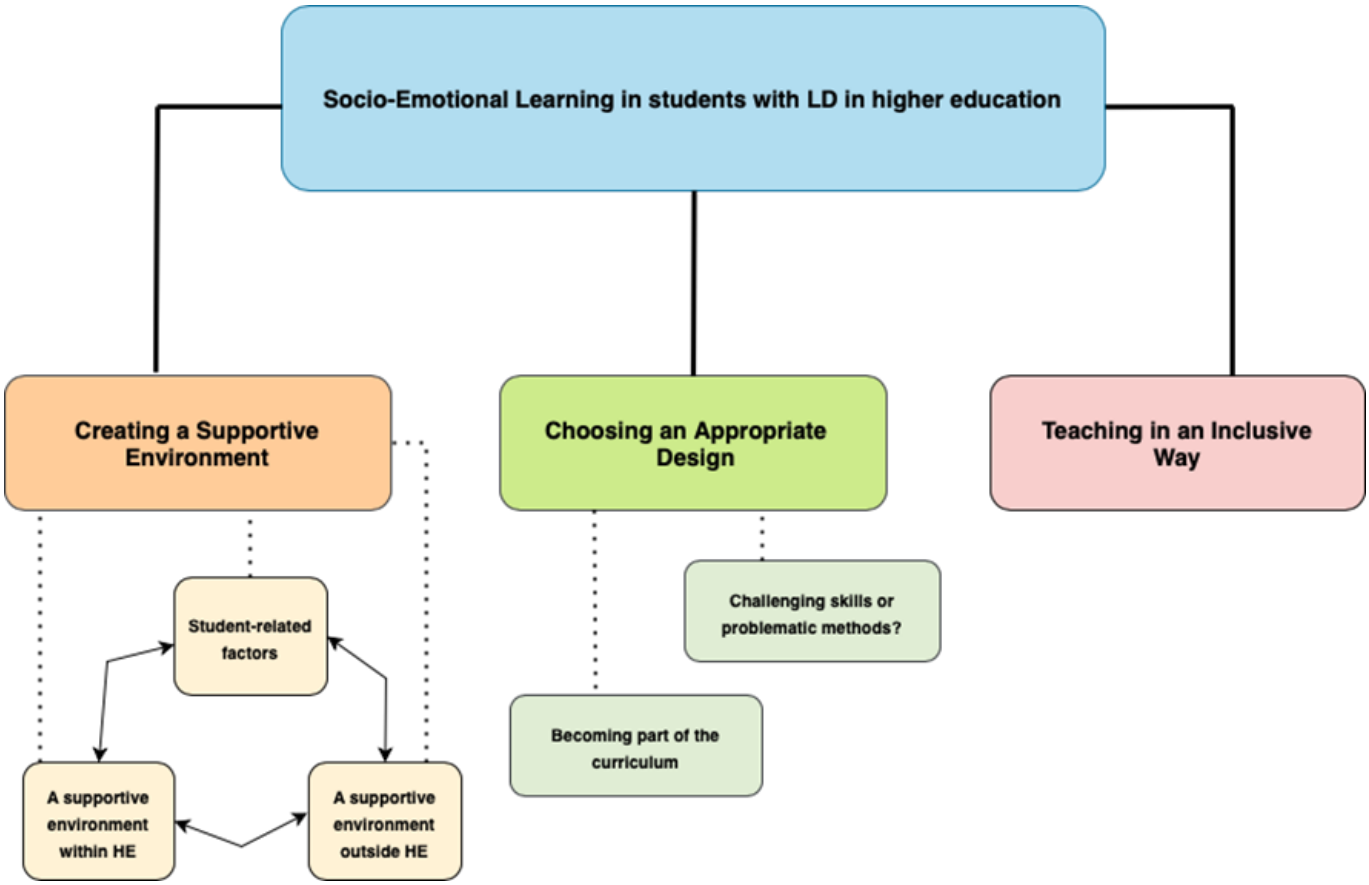


Figure 4. Thematic map of UCY findings

Note: The dashed lines depict the subthemes sustaining each theme.

Theme 1: Creating a Supportive Environment

Participants discussed the significance of establishing an academic system able to facilitate the implementation of socio-emotional learning within higher education. In specific, they examined several limitations and barriers encountered in the current system, as well as possible ways of addressing them. They focused on barriers encountered at: a) the individual level; particularly, student-related issues, b) the university level, and c) the broader academic system. The relationship between the barriers examined was described as bi-directional, given that a change in any one of them was perceived as able to affect the rest in a positive or negative manner accordingly. For instance, participants supported that by reducing the academic workload, students' socio-emotional learning would be impacted in a positive way as this reduction would allow time to engage in extra-curricular activities targeting socio-emotional skills, as well as time to practice the skills they learn.

Student-related factors

The main student-related barrier identified was a broader lack of interest and engagement with existing initiatives (e.g., skills workshops and seminars provided as extra-curricular activities) aiming to develop socio-emotional skills:

> P2: (…) bridging [the need for developing students' familiarity with skills] is something that we are trying to do with some workshops at [*name of a university entity*], [though] not particularly effectively because there is not much response [from students].

> P1: (…) I know the Center for Learning and Teaching offers similar seminars [about finding sources], but again students don't attend them.
> P5: Because it's what we said, it's over and above their time, [and] they don't earn something [for their participation].

Regarding the reasons behind this lack of interest, participants discussed the contribution of barriers encountered at the university-level; particularly, the increased academic workload, which prevents students from engaging in anything else:

> P5: (…) truth be told, the University of Cyprus is very demanding. I mean it doesn't let [students] relax at all. They enter [the university], they study, they have midterms, some departments have double mid-terms, two mid-terms, and [then] the finals. (…) It's very demanding and I don't know if that's the correct system because it doesn't give them time to assimilate the information, to understand it.

The lack of engagement with activities targeting socio-emotional learning was also attributed to personal factors. For example, below, P1 raises the issue of lack of intrinsic motivation whereas P4 discusses the students' failure to understand that investing the extra time in such activities, may help them manage the academic stressors they encounter:

> P1: I should add that it is also a matter of intrinsic motivation because some [students] will enter a course that they didn't want. (…) Consequently, we see a lot of students that are [in the classroom] just to be there, (…) they will study the bare minimum just to pass [the module], so this plays a role too.

> P2: As we are discussing this, I am thinking of what stands as a barrier for students. Personally, it saddens me very much because I see that there is no interest. And I get the "I am running out of time, and I have lots of things to do". We've experienced it in many different settings. But at the same time, I am not sure.

Do students realize [the benefits of attending]? Do they make the connection that "If I go to the 1.5hour workshop on Wednesday, I might find a way to manage all this bad thing that is happening to me?

In addition to "reducing the course material" (P3) and incorporating the training as part of the curriculum (see Theme 2), another suggestion offered for addressing such barriers was the use of incentives, specifically course credits, to encourage participation:

P5: If they are provided on a voluntary basis, as P2 told you, unfortunately [students] don't utilise it. My opinion is that they must be integrated, either integrated as part of a module, which is even better, or if it will be separate, it should be a mandatory part of the curriculum and maybe, [students] should receive some credits so that they attend [such training].

P3: (…) I found this research study through an advertisement for [extra] credit. (…) if this credit wasn't available, regardless of how interested I might be [in the topic], to be here now, I am missing two lectures. [And the reason] I am missing these two lectures is because the credit is very important for me for this module.

A supportive environment within Higher Education

The overwhelming pressure of academic courses was the most common barrier identified within the setting of Higher Education. All participants agreed that the current system of assessment (i.e., combination of midterms, finals, tests, assignments) is very demanding. Therefore, it hinders socio-emotional learning as it does not allow time for involvement in relevant extracurricular activities:

P3: I totally agree with what has just been said. Just like we said, I believe the reason [for not attending skills workshops] is the overloaded schedule of the university. I don't think anyone would like to voluntarily do anything university-related beyond university requirements, because these requirements are too many.

P4: As I was listening to the discussion, I was thinking that if [for example] a student has minimum, minimum, socio-emotional skills, has a basic understanding of what it happening to him/her, has a very basic understanding of planning and critical thinking, and is constantly in an exams period, I remember when I was an undergraduate student, the say was that when you enter the University of Cyprus, the exam period starts about a month later and it will end after graduation. The student who has these skills at a lower level and is under these circumstances, is the same student who will decide not to attend a workshop [offered by] his/her department, by the health center. Because going will increase his/her anxiety, as it will deprive him/her of time that he/she can devote to dealing with what he/she is struggling with academically at the university.

While this increased pressure was described as a broader issue of the university's culture, all participants acknowledged that variations exist across departments, with some departments being overly demanding and focused exclusively on academic learning. Teaching socio-emotional skills in students from such departments was perceived as an extremely difficult task:

P2: (…) we have some departments that I dare say are very inhumane and cruel. We have students who experience great discomfort due to how much orientated towards knowledge these departments are.

P4: Um it is also a culture issue, because I, again if nothing changed since the time I left [from the university], I remember a department that had, its students brought a bed so they can sleep a bit at night,

> and continue [studying]. And I think this might have gotten worse since then. There are some departments that are full of life at three-four in the morning, and we are not talking about a few students who [work] at that pace and it suits them. (…) I cannot see how you can teach socio-emotional skills if the department has this culture, which requires that you do this to [pass].

In addressing such barriers, the need for a change in the university's culture and the reduction of this pressure were discussed:

> P4: (…) regarding how you make every module create space for students' socio-emotional skills, you can't have this culture of sleep at four in the morning and come to class at nine.
>
> P3: I believe that by reducing the course material, you can improve a lot of things.
>
> P5: The issue of the course material is a large topic. I don't know who should [address] it, it's not our [issue], but it's important to come to the fore at some point because I have also heard this from all the students, that they are under a lot of pressure, they don't feel like students.

Further, participants highlighted the significance of additional training, possibly on a mandatory basis, for all members of the academic staff but especially for those found at key positions for supporting students and their socio-emotional learning (e.g., academic advisors):

> P1: [The students of our department] are under pressure but not as much pressure as I hear here. In a department that has a different culture, there, lecturers should be educated first. (…) Otherwise it is a vicious cycle to target only students, because it can't address the real issue that is the object, the lecturers, the way they have structured their modules.
>
> P5: I believe that older lecturers in Schools other than Humanistic-Social [Sciences], it is very difficult to train them or [for them] to accept to be trained in such matters. (…) But at least we should [target] the ones who start now [either] through the Center for Learning and Teaching or with any other mandatory way.
>
> P4: I think that the academic advisor must be, must be a separate role (…). It is a role that if you will do it correctly, [it requires] a lot of work and is given to people that is not their role, nor are they trained, nor do they have any particular motive to do it.

Shortcomings relating to the dissemination of information about available services and actions targeting socio-emotional learnings were also brought to the fore. Participants talked about students' failure to use such services due to not being aware about their existence. Hence, improving the ways in which relevant information is disseminated to students was perceived as a change that could promote a more supportive environment for the development of socio-emotional skills within Higher Education. This is exemplified below.

> P1: We have those academic advisors in every department (…) and somehow the message that there is this support doesn't [reach the students] (…) so it's not utilized. (…) we have support systems but there we have an issue, not everyone knows that they exist.

On a more practical note, issues concerning time-related and financial constraints were raised. Though they suggested that changes in the ways that lectures are structured (see Theme 2) can be critical in promoting skills development, participants acknowledged that practical restrictions have the potential of hindering socio-emotional learning. For instance, P4 wondered about the possibility of teaching a new module targeting

socio-emotional skills in small groups given the financial costs this adaptation would have and P1 explained how time-related constraints prevent her from teaching presentation skills as part of her undergraduate modules.

> P4: (…) you must have the resources to separate them in, umm, I don't know, ten-ten so they can sit in a circle to discuss, or whatever these activities that you will ask them to do will be. Because no one can do an experiential [activity] with seventy [students].

> P5: [*the participant is responding to a comment by the academic staff member about how she teaches postgraduate students presentation skills and how to find sources]* P1 said two very important things: presentations and sources. There is no student at the university who will not do a presentation or will not use sources, [but] they don't teach them these skills.
> P4: P1 talked about the postgraduate course.
> P1: Yes.. For the undergraduate course I don't ask for them because I will have to dedicate a lot of time in the second year that I teach to them. Otherwise I would have aspect for it.

A supportive environment beyond Higher Education

Another barrier identified was the lack of a foundation of basic socio-emotional skills upon a student's entry at the university. Some participants supported that because of this deficiency, students struggle to adjust to the university setting and its increased pressures:

> P2: (…) unfortunately they are not taught skills earlier, in a setting where changes such as puberty for example, I say that we have teenage adults at [*name of a university entity*] who have the capability to make decisions for themselves, yet they continue to experience the discomfort [linked to] their emotions, they struggle to identify [them] and eventually manage [them].

As seen below, this lack of skills was attributed to a failure of the broader academic system, especially secondary education, to provide socio-emotional learning as part of one's education:

> P5: (…) the feeling of wanting to help someone, of contribution, of social contribution, and the rest. I think these are some issues that can be developed into skills, but certainly, the first part of [this learning] is the [responsibility] of schools and education.

According to P1, while the lack of socio-emotional skills may be concealed by the structured guidance students receive within secondary education (e.g., guided by parents, special education, tutoring), the freedom they have in higher education in terms of how and when they will organize their schedule, brings to the fore the shortage of skills, specifically ones relevant to planning and organizing:

> P1: I wanted to add to this that many times, it starts well before [students reach Higher Education]. I mean students come here and they can organize [their schedule], but basically, perhaps this started from school, (…) they weren't taught [how to do it] in school. (…) Students with learning difficulties or other difficulties, maybe if they find it out early, the family is focused on covering theses, these gaps. So, they may attend special education lessons, one thing or another thing. There, again everything is clear for them and broken into little pieces so that they can learn them and advance. Thus, someone is always guiding their learning. Consequently, when they come here and there is this gap, teaching must be done in a kind of a systematic way, but this doesn't happen through modules. (…) And the failure comes and

anxiety returns because this is a matter of planning. While [students] have the deadlines, have the dates, have some kind of reminder from me, as this is the only thing I can do within the scope of the module, because some [students] come with this mental that they had [in school], I think it's difficult for them to learn to [plan and organize their schedule].

Theme 2: Choosing an Appropriate Design

Participants expressed the view that using an appropriate design is critical in facilitating socio-emotional learning in students with learning difficulties within Higher Education. The sub themes that follow examine their views about challenges relating to the current teaching methods accompanied by appropriate alternatives, as well as suggestions regarding the integration of such learning as part of the curriculum.

Challenging skills or problematic methods?

When asked about potentially challenging skills to train, participants supported that self-regulation skills (e.g., emotion regulation, stress management, planning and organizing) and skills relating to responsible decision making (e.g., problem solving, critical thinking), might be more challenging to train in people with learning difficulties:

P1: Possibly I would say planning and organizing are usually [skills] that are lacking in people with learning difficulties or attention deficit or people who have experienced and are experiencing intense stress. They struggle a lot to organize if you just tell them a couple of ways to do so.

P3: I would start with stress management, which I believe is the first outcome of the issue with planning and organizing for example. Because when someone is stressed, things inside him/her become a blur, and especially in people who struggle to or have issues with their concentration and [academic learning].

P4: I was thinking that this has to do with the way we teach rather than an objective [skill-related] challenge that exists anyway, though I recognise that aspects of self-regulation and responsible decision making, due to their nature they might be a bit challenging [to train in students] with some learning difficulties because they are part of the experience. But even then, the only thing that needs to be done for training purposes is to allow enough time, emphasis or more space to be trained, rather than being a challenge per se.

Although the potentially challenging nature of certain skills was acknowledged, some participants, like P4 above, supported that what makes socio-emotional learning challenging is not necessarily the type of skill one wants to train but rather the teaching methods that are currently used. These ideas are expanded below:

P4: I think the challenge emerges because most people will learn [these skills] almost automatically through the traditional learning process, without having to actually be trained. Because it's not training to simply tell someone do this and that thing. For people [with learning difficulties] it will not work. They will need to practice [these skills], they will need to experience them, they will need to learn them. They will either do it on their own or they will have to do it in a setting where someone actually addresses this need for learning.
Facilitator: So the challenge is not so much in learning the skills but rather in the way we teach the skill, which makes it more difficult.
P4: Because the traditional way of teaching simply doesn't fit them.

P2: (…) it has to do with how we will teach them [the skills] rather than the skill per se, the process. And often this is what I hear from students, regardless of whether learning difficulties are involved or not, though it becomes more intense with learning difficulties.

Implementing "experiential methods" (P4) of teaching, including "workshops" (P2, P5) and "seminars" (P2, P5), and allowing time and space for students to practice skills preferably in small groups, were described as suitable teaching methods for skills development. Participant 4 supported that these approaches move beyond merely educating students about various socio-emotional skills and instead train them in these skills:

P4: (…) it would be very useful, [*towards P5*] what you said before about Induction week, because it's important to start with this. But I was thinking, in my mind, in a [university] setting where there is the necessary will and commitment, it would be more meaningful to have an introductory module that will last a semester and it would have chosen very basic skills and it will correspond to 5 ECTS and you must take it. You will have to participate because you will get a grade, but the participation in this module will essentially be the implementation of these skills. And I use the word implementation because it doesn't necessarily need to be a lecture for these skills but rather a practical module. Because the reality is that in the rest of the modules, what I am thinking is that it's important for this module to be designed in a way that allows you to adjust it to your needs and your way. (…) [in other modules] there are seventy students, which means that it's impossible for them to think about these skills, see themselves in them, to practice and receive feedback, which is this processing that will transfer you from the knowledge to the skill. But if there was a module that forces you to get into that rhythm just to practice [these skills], from then on, it's a bit more individualised. (…) you must have the resources to separate [students] in, umm, I don't know, ten-ten so they can sit in a circle to discuss, or whatever these activities that you will ask them to do will be. Because no one can do an experiential [activity] with seventy [students].

Becoming part of the curriculum

Participants expressed the view that socio-emotional learning should be integrated in the students' curriculum under a compulsory capacity. Specifically, they suggested the integration of training in socio-emotional skills in existing modules but emphasised the creation of a new module focused solely on the development these skills. As discussed in extensive detail in the previous extract by P4, this course could be offered in the first semester of a course and be mandatory for all students. Alternatively, a shorter version of this module or an introduction to socio-emotional learning could be incorporated in Induction week, as suggested by P5:

P5: Some important seminars, workshops, could be [included] as mandatory [activities] during the students' Induction week. In the case of the University of Cyprus, Induction week does say much. It includes a visit to the library and they learn how to use the computer [labs] or the IT center or. Instead, they should be teaching them such skills, the basics obviously, and I think that would help.

Theme 3: Teaching in an Inclusive Way

Participants supported that the training of socio-emotional skills in students with learning difficulties should be offered in an inclusive way. This inclusive nature was perceived as beneficial both for the learning process, as it facilitates social learning through interaction with others, but also for their overall integration to the university setting. For example, below, P2 highlights the importance of peer support and learning in groups, whereas P5 raises the issue of integration:

P2: (…) I consider peer support and learning from others to be very important. Thus, being in groups that encompass these two different parts [*P2 is referring to an integration of psychological and pedagogical teaching methods*] and allow [students] the opportunity to interact would be useful.

P5: No, you shouldn't separate them. The integration we were discussing [before]. All individuals should be together. [To have] specialisation in some things, yeah. But you shouldn't do a seminar for people with disabilities, another one for [people] with learning difficulties and another one for the rest let's say. (…) All individuals should feel that they are students of the same university, the same community, unless it [concerns] something that is very specialised, which is different. But based on what we are discussing, the general [skills], I think they need to be [taught] together.

Ways of enhancing the effectiveness of an inclusive way of training were discussed too. In specific, the importance of a careful selection of skills to be taught was identified. P4 noted that providing training in some carefully selected primary skills, can contribute to the development of secondary skills too:

P4: (…) I think it's important to choose basic skills to allow room for processing and possibly, I think this will allow room for secondary [skills development] too.

The methods used to train these skills were also considered important in either facilitating or hindering an inclusive way of teaching. Given the diverse nature of an audience composed of various groups of students, the use of multiple methods to teach the same skill, within the same audience, was deemed vital. Beyond the benefits of repetition, participants believed that teaching a skill through different methods can increase the likelihood that all students will be able to identify with a particular method and thus learn the skill:

P4: I believe that different types of activities, and it shouldn't be one [activity] per skill, because when you start to incorporate two or three different ways of covering the same [skill], you find yourself in a position where you are more likely to find a way that works for everyone. [This will allow] space for repeating some things (…). Using different kinds of activities that are shorter and concise, you leave space even for those who have other types of disabilities or difficulties. And because they are [in] one group, you also don't bring this, this component of "You who have a special problem [need] to come here and discuss it". But at the same time, you create a space for all the people who have there, who might be undiagnosed, and they may not even need the diagnosis, or for all the people who have a difficult at a lower level than the one that would be diagnosed.

Further, training socio-emotional skills using various case studies that can appeal to the different roles and identities each student has, can maximise learning, especially in such a diverse group:

P1: (…) I agree that it can [include] different methodologies, be something that doesn't take time, [and that] all students should be together [and] not separated. In some way, it should be taken into consideration that all students, or actually every student, has multiple identities and a learning difficulty might be one of those identities. Further it might be one's gender, language, place of origin. (…) Hence, it would be very useful to have some case studies that [capture] these multiple identities so that the participants feel that they are somehow covered with these issues or that this case study is relevant to me too.

Appendix 4: Focus group findings UOC

1. SE skills deemed important: CASEL model and beyond

The CASEL model served as a good starting point in the discussion with the stakeholders. Several categories from CASEL model were recounted among participants, however, there were few of the main and subcategories of the model that were not mentioned and some new ones that emerged as part of the brainstorming part of the focus group session. When participants used the poll everywhere tool, SE skills that emerged in the screen included:

> Mod2: (reads from screen) *"Solidarity", "regulation", "understanding", "communication", "support", "problem solving".*
>
> Mod1: (reads from screen) *While I see "reflection" here, or "regulation", "self-management" that have to do more with ourselves, […] "self-awareness".*

CASEL model was adapted based on the responses from participants to incorporate (with blue ink are the new entries, with black ink the categories maintained from the original model):

Table. Adapted CASEL model based on input from UoC focus group stakeholders

Self-awareness	**Self-management**	**Social awareness**	**Relationship skills**	**Responsible decision making**	**Other: meta-cognitive and skills combining elements from CASEL categories**
• Self-understanding	• Emotion regulation • Stress management • Goal setting	• Perspective taking • Empathy	• Communication • Team work/collaboration • Intercultural awareness • Interaction • Supporting others	• Decision making • Problem solving • Analytical skills	• Reflection • Assertiveness and claiming skills

Based on the table above, it is evident that UoC FG participants identify a host of individual categories such as emotion regulation, communication, problems solving and empathy as key elements of a toolkit of skills SEL should aim to develop. However, the conceptualization of these categories may vary. For example, the term assertiveness is included twice in the list above, the first time as originally intended in the CASEL model, but also as part of the new category "other meta-cognitive skills and skills categories combining elements of CASEL model". In this instance the term used is "assertiveness and claiming skills" to denote that assertiveness is taken to integrate elements of self-awareness, self-management, and interaction skills, beyond persistence and self-confidence in interactions (Mod1 lines 218-225, also see 2.1 below).

2. Opportunities and threats for SE learning in HE

2.1 SEL skills

The first important pattern identified in the text (in the part of the discussion about key factors that can support SE learning among students with LD) was the genuine difficulty all participants faced in identifying and talking about specific SE skills. Nonetheless, there were some brief references to areas such as "understanding" for students facing LD "empathy".

St1: I take, there will always be a difficulty from those, the individuals who do not face the same or in general LDs. The difficulty is to begin with, showing an understanding, many (people) can't do it because they don't know how it is but also […] they get scared by the options and […] they prefer not to try something than do something wrong.

St2: […] for example I think empathy is hard to have and actually put it into action […]

or "trying things to help students with LD", "problem solve", "managing time" and "setting goals":

Couns2: An additional difficulty I was thinking as you are talking, is the issue of time management going hand by hand with the issue of aims and goal setting and procrastination.

As a result, there was one "umbrella" skill identified and discussed at length in these terms across the participants who built on each other's points, namely "assertiveness and claiming skills".

Couns1: assertive behaviour could be taken as one such skill? In the context of our discussion, that is to claim/vindicate what they need, to learn how to say "no" to things, all these could be taken to be SE skills?

This umbrella term was through to encompass a set of other qualities, expanding beyond what we traditionally think when we consider assertiveness:

Mod1.: [summarizing, rephrasing points made by participants],I think this is a combination of two things, the one relating to self-management, things I want, the second relating to interpersonal skills. So it is a combination, and somewhere in the middle, and it also takes self-awareness, what is that I am after, to be able to show the others and during interactions (Couns1 nodes), so this is an interesting thing that needs development of parallel skills at the personal level to be able to understand and manage self and then to be able to show it and communicate it to the others at the interpersonal level.

2.2 "SEL, what SEL"?

A second important emergent theme was an all-encompassing difficulty of participants to focus specifically on socio-emotional learning in HE. Alongside the difficulty participants showed in pinpointing specific SE skills, this theme potentially unveils the lack of familiarity and the thinking that goes with it with the notion of SE skills and SE learning.

Next, we present evidence on factors and actions to support SEL programs with students facing LD separately for students and faculty but combining views drawing from both thinking specifically about SEL or generally across all learning.

Participants when they focus on actions and factors relating to faculty members acknowledge the importance mobilizing (raising awareness of) faculty, training and supporting SEL trainers and staff, and the role of faculty as people who are flexible with students and teaching schedules:

St1. Well, right. I don't think that what we have mentioned so far is at all realistic. For a faculty member who wishes to help but does not know how, these may sound like too much work (emphasis placed), although this is not the case. I know well how it is to have to deal with a good faculty member, so what I

want (emphasis placed) is at least to get better, not the faculty member that is already good to become better, but rather the faculty member who is not there to just make an effort and care a bit more.

[…]

They want, I think that if we focus (pause 2s) on what they seek to achieve in the end, that is for all students to succeed in the exam, I think we will be able to, there will be a chance to find more realistic aims (pause 2s), that's it.

[…]

Absolutely [I would make it a priority to sensitize/raise awareness among faculty members], the truth is some more empathy would be welcome from say the 80% of the faculty members.

St.2.: With regards not to the part of the faculty, I believe that (pause 2s) the discussions from academics with other academics on the topic, as part of their departmental meetings or similar in these contexts it could help them see that some other academics disagree with opinions such as not offering oral exams or not caring the small percentage of students that are students with LD and only try to have a session going as smoothly as possible (emphasis) with the rest (of the students).

When it comes to actions aiming at the student corpus, there are a host of factors that enable or inhibit SEL among students with LDs. These include things that involve faculty characteristics and practices (inclusive practices, acceptance and understanding of challenges) offering choices and connecting with students:

St2.: In general the faculty should try to be analytical with the procedures that student will go through (pause 2s) to be more open to discussions and after class, because in general I feel ok they give you office hours and if you have questions you can send emails, but I consider this a very distant way of communication, nobody ever goes to office hours and with emails they do respond with delays. I believe [it would be good] to be willing to sit with you and respond to your questions after class, and to respond to questions, that most of them [academics] are not willing to do so. That could be a solution.

These actions also include making time to meet with students, organizing sessions and courses, working through study groups:

St2.: And in general (pause 2s) putting in to your schedule some classes and some time to dedicate to (pause 3s)… that they can, let me explain (emphasis), there are students in general that don't have (stuttering) LDs but in any case they might for some stuff, they might not get them or need to have them articulated in more than one ways.

St3.: I believe that social peer support would help them (students with LD) way more to decrease their levels of stress and I believe that a good idea would be to have study groups that could be organized by a faculty member or from peers during which these students could practice problem solving, time management, helping peers to prepare with exams for example. That it, I take that a study group could be a good solution for these students to be able to train themselves in these strategies.

Moreover, these actions involve the implementations of practices that support learning and SEL in particular:

Couns2: Potentially, maybe the teaching staff could be more helpful should they act as more or less (pause 2s) having the role of a mentor in this part, that it to guide students, "let's see where you are having a hard time, put together some SMART aims" if we are talking about an assignment due and the student

expresses a difficulty along the lines "I am lost, I can't find the literature, I am having difficulty there" so the teaching staff having in mind the SMART aims could help the student in this area.

2.3 Threats to SEL teaching among students who face LD in HE

Data revealed participants shared a concern as to the delivery of SEL among students that face LD. In particular, while we looked at opportunities and threats discussed for SE learning in HE, evidence suggested that people perceived the topic mainly through a set of internal and external barriers relating to students and faculty as seen in the table below.

Table. Internal and external barriers to SEL teaching

	Internal barriers	External barriers
Students	- Difficulties due to experiences or circumstances - Position difficulties	
Faculty	- Lack of awareness and doer's approach	- Lack or relevant knowledge - Lack of efficient practices

Common internal barriers for students included difficulties linking to their experiences (social anxiety due to traumatic experiences), circumstances (big volumes of information), or their position (first year students and new conditions):

St2.: Because if we don't thing of a first year student who has just come to all this new thing, who needs to be independent, to run his own home, manage money, and all these external factors who compete with the time you need to give to Uni, in which they don't know the specifics about the exam period, how to take notes of the faculty lectures as quick as needed, how to speak and read [for Uni]. In general they are rookies, let's say.

St3: Right, I would like to stay with the point of anxiety/stress students facing LDs may be experiencing because we need to remember that they are facing way more difficulties than the rest of the (student) population. For this reason, when they enter a new environment, and they face considerably more stimuli (emphasis) I take that their anxiety increases way more.

Common internal and external barriers identified for faculty members included lack of knowledge (for example of implementation of inclusive practice) and of student understanding (for example of the challenges students with LD face); lack efficient practices supporting learning among students LD (such as seminars about LD), and lack of faculty awareness and doer's approach.

St1: There is always a difficulty mainly for those individuals who don't have the same or they don't have in general learning difficulties. The difficulty is […] but also what I understand is that they get scared considering the choices (going back and forth) and they don't know how to (pause 5s) do how should I say this, how to be more inclusive per se, so they prefer not to try at all than to try something that do something wrong.

[…]

Oh right, so what I meant to say, I think it is one of the topics misses Y referred to, it is (thinking, pause 2s) the lack (pause 2s) faculty members not wanting (emphasis) and not considering there is an issue (problem).

Couns1: *(coughing) I would say that there are levels of awareness with regards to the faculty members. That is, yes (emphasis), some are more or less [sensitized] than others. But if we had to say what the trend (putting is as question), my experience says that it is not the majority that is sensitized (pause 2s). They can be though. This is what we should aim for.*

[…]

Because, one idea would be to run a seminar, for raising awareness, well I don't know with regards to learning difficulties. There we might get lost because it is not, because not everyone would attend, because awareness/sensitization is not a given.

3. **Inclusion or no inclusion?**

There were voices suggesting that an individualized way of SEL training is necessary, aiming specifically at students with LDs. However, there was a clear tendency towards inclusive practices in SEL from participants.

Couns2: Right now, I was thinking about it for as long we are discussing this, whether there should be a separation and to what extent [teaching] should be differentiated, the erm, to you who have difficulties I give more time or I do something more spec, more specialized compared to the rest, erm (pause 2s), not sure if I have conclude whether there should be something explicitly different and individualized. For sure though for the faculty to have this intention so that whomever needs more, I am open (as a teacher) to offer help, in addition to what is being discussed in class or even if at any time there will be an additional module with regards to these skills that we will be working on these, maybe with the first year students it would be meaningful to have something like this and maybe the 15 minutes X mentioned earlier, that will be open to all, not only students.

Indeed students, in particular, appreciate that sometimes individualized and specialized learning has its own merit but inclusion has undoubted benefits, including avoiding stigma:

St1.: I think that although individualized/specialized learning is necessary (pause 3s) I don't know it is a bit restrictive. Not only are the students (pause 2s) that have LDs but also the students who don't face such challenges and will benefit from such a response, not response, (someone intervenes), practices yes. It is not bad to have an extra understanding, patience and persistence with students who need it, regardless of whether they face LDs or not […]

St3.: However, [the approach taken] should give the opportunity if some students have some additional problems or difficulties/challenges to offer them an additional session that could be exclusively dedicated to their individualized difficulties and so that it always seeks to be inclusive, and so that it avoids student stigma[tization].

Appendix 5: Focus group findings ELTE

An inductive thematic analysis based on Braun & Clarke (2006) was carried out on data collected in a semi-structured focus group setting. Participants of the focus group were a university psychologist (P1), a member of education administration (P2), a student with learning difficulty (P3), and a neurotypical student (P4). Two more participants, namely one person from the Support Group for Special Students' Needs and one person from student counseling at LFZE, Liszt Academy, were to attend the focus group, however, due to unforeseen circumstances, they could not participate. Participants were selected with the aim of including people who may have differing and relevant perspectives on learning difficulties and teaching socio-emotional skills in higher education.

An inter coder reliability analysis was conducted in order to ensure that the codes applied to the text were adequate. An independent person was asked to apply existing codes to 10% of the transcription of the focus group interview. The analysis showed that the accordance was 87% (Cohen's k = 0.73) indicating substantial agreement.

Through thematic analysis, two main themes were identified. A thematic map depicting the relations between identified themes can be seen in Figure 5 below.

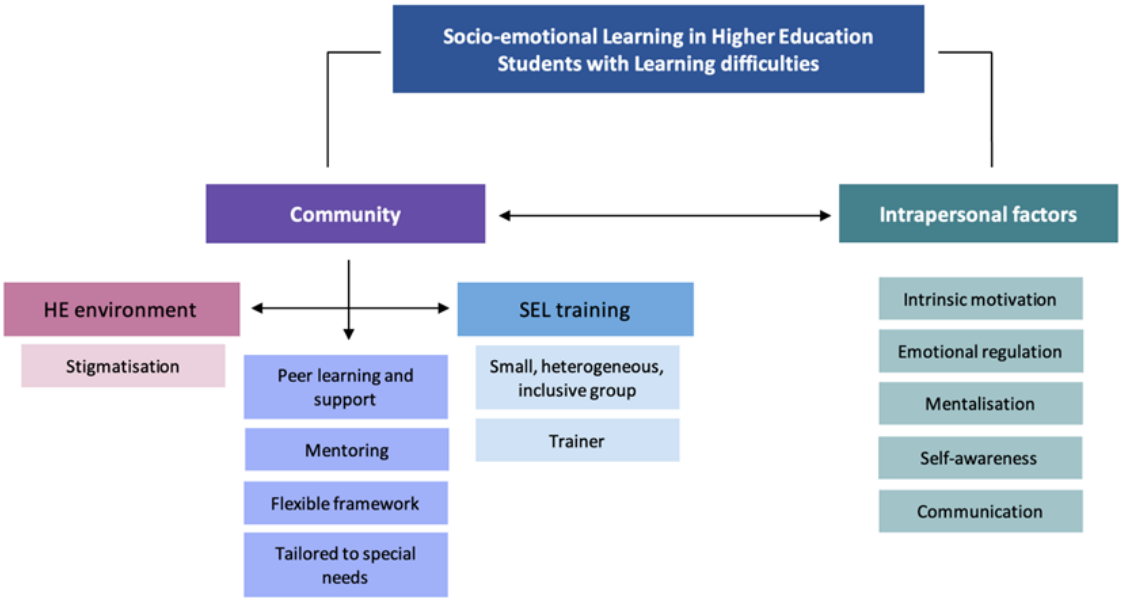


Figure 5. Thematic map of ELTE findings

The most salient theme throughout the focus group session was *Community*, revolving around the need for and the benefits of a sense of community in the higher education environment and the SEL training. In relation to this, the current education system received criticism which can also be constructively applied to creating the SEL training in a manner that would consider individual needs. *Intrapersonal factors* were also identified as key to effective socio-emotional learning with participants discussing factors that greatly impact students' lives, especially those with learning difficulties. These factors are closely related to and interact with themes discussed in the *Community* section.

Theme 1: Community

A central theme of discussion was the need for human-scaled groups and sense of community, and their significance in the context of a) higher education, b) SEL training, and c) some aspects applying to both. Participants discussed limitations of the current higher education system and proposed improvements extensively, many of which can be applied to the SEL training as well. Topics under *Community* were seen as interrelated, with each influencing the others and being relevant to both the HE environment and the SEL training, and as a whole being also interdependent with *Intrapersonal factors*.

HE environment*: *Stigmatization

Stigmatization was discussed as a key flaw of the current education system to the detriment of students as it affects self-acceptance, asking for help, and participation in programmes or higher education as a whole. Stigmatization by teachers and peers can be equally damaging and sensitisation programs for both teachers and students could be a preventive measure. Examples:

> P4: *And there is a stigma attached to daring to [open up about having difficulties] anyway. And as long as the attitude is that he's stupid and he gets the label, he might not take it up, because why would he take it up. He's not stupid.*
>
> P4: *And there are lecturers in higher education still who say, "I hope we don't have to deal with dyslexia here, because they don't admit idiots here". And then there must be a dyslexic sitting there, if this is said in a lecture for two hundred and fifty people, there must have been a dyslexic who has just said to themselves "I'm sure I'm not going to say that I am [dyslexic]" or whatever.*
>
> P4: *(...) the stigmatization, it's not just the lecturers I think. I think that this is also very strongly present among peers (...), and whether it is okay to ask for help, and whether someone who dares to ask for help is weak or actually strong.*
>
> P2: *(...) But to (...) somehow make the students realize that lecturers are like that and... [laughter, Moderator: Mh.] Then to reverse it, from the students' side: "Yes, he is unfortunately like that, but at the same time he can explain this really well" so they don't take it as [bad].*

Stigmatization was seen as a significant obstacle in HE student's willingness to take part in programs.:

> P1: *Or that even between the different learning disabilities, and I think it sounds very stigmatizing, but even a lay hierarchical order may have developed. "This is acceptable, this less so". (...) So to say that, okay, you have dyslexia, but you have an attention deficit disorder, "Oh, attention deficit disorder..." [indicating that it could be more extreme than dyslexia].*

While the HE environment was regarded as a main source of stigmatization, participants did not mention it as a potential problem in SEL training, it was assumed that in such an environment/setting stigmatization is eradicated.

SEL training: Small, heterogeneous, inclusive group

Participants concluded that training would be most effective in smaller-scale, inclusive groups to ensure a safe environment, where the ratio of students with learning difficulties and neurotypical students is carefully managed.

P4: *(...) On the one hand, it's good to have the opportunity to get to know them, but I started under Covid and I didn't know anyone for the first year and a half. (...) And that, for example, made my whole education impersonal.*

Inclusivity was supported given that the group leader is well-trained enough to sustain and support a diverse group:

P2: *(...) And I was also thinking about who is holding [SEL training], the group leader himself, how skilled he is in dealing with these kinds of difficulties. So I think it really depends on the person who is holding it. Because I think that in a well-managed group, I'm a great believer in inclusion.*

P4: *(...) if there are enough tutors or mentors or mediators in a small group, I think it could be organized in such a way that everyone can speak safely, even those who find it difficult and those who speak too easily or too much, so that they have space. So I'm more sympathetic to a more mixed group (...), but the number of participants is important there. So a group of 30 people might be too big.*

SEL training: Trainer

The characteristics of the trainer also emerged in the discussion as participants agreed that rather than needing extensive years of specialised training, it would be more important that the trainer is socially sensitive and can create a safe atmosphere. Shorter training time would also be more feasible and would allow for people of different backgrounds to be group leaders, which was further recognised as a benefit.

P4: *In many cases, it is enough to be welcoming and to have a basic set of skills that are stable. To create and maintain such a group, if you can make sure that they are accepting of each other (...) But I think it's also an advantage if they are accepting, it helps and it can keep them in the group.*

P1: *I think their social skills are more important than their education. So having a high empathy, sensitivity, accepting attitude, is much more important than what degree they have or even what field they have.*

Having multiple group leaders and the helping position being open to all students was raised by P4 for having multiple advantages:

P4: *Yes, or not just the Student Council, but any student who would like to join. Anyway, the group sessions are usually led by 2 group leaders and it is enough if one of them is a semi-group leader, I mean, a semi-group leader who is not a qualified professional, but an upper-year student. I think that would work very well for such a group. And it would also give a lot of opportunities to people who would like to join such a group as students. That it could be beneficial in many ways. I'm sure we could even find someone in the faculty of psychology who would like to lead a group like this, or who would like to try out a role as a co-therapist.*

HE environment & SEL training: Peer learning and support

Peers were described as potential facilitators, models for socio-emotional learning, as communicating with similar peers (in terms of personality and learning difficulties) can be easier, thus creating a more comfortable atmosphere in group settings. This awareness bears significance relevant to both the HE environment and the SEL training itself.

P3: *On the one hand, similar peers, a little bit similar in thinking, not necessarily the same, because, for example, if it's a specific subject, it's easier to put it together in a way that you don't put a [humanities student] as a supporting partner to the subject of [natural sciences] (...)*

P2: *Well, yes, and them being peers, I wouldn't think it's therapy [implying stigmatization of going to therapy], and I don't know…, so it brings them closer to the whole thing.*

HE environment & SEL training: Mentoring

A more specialised type of peer interaction, mentoring appeared to be a preferred way of supporting students with learning difficulties.

P1: *For some reason, I thought of the mentor thing in connection with this, so I think that might help. But somebody might get really frustrated with it or, say... but I don't think it's a bad idea anyway. So, to connect people, where a small community can develop, where people might prefer to talk about the gaps that they have or have had, or which cause difficulties at the beginning, in a smaller group rather than in a large one...*

P1: *So to socialise [students] a little bit there, so that the development of the mentor network or something like that came to my mind.*

Among other advantages of mentoring, P1 emphasised the great value of the mentor-mentee relationship itself:

P1: *And the fact that if there were such a help or mentoring programme, so it's absolutely, you know, the relationship that is created. So, if you have such emotional development, the relationship itself is healing, it has a developmental effect.*

HE environment & SEL training: Flexible framework

Stemming from a pressure in the current university system, participants identified the importance of acknowledging and supporting individual needs, which would involve implementing more lenient but still effective frameworks and operational guidelines to programmes and higher education.

P3: *(...) you might run out of time, arrive late to class and then it's a problem in ADHD circles and if you could come to a self-help class, for example, it wouldn't be so bad if you came later, say half an hour later, and you could just participate in the conversation [that would help].*

While recognising the need for inclusivity and catering to special needs, the positive role of having set guidelines in place was also mentioned:

P4: *(...) And so that, for example, they don't get mad at me if I'm late, but after being, say, 30 minutes late, I might just disrupt the process. But it shouldn't be penalised. So, I think the framework also has an upholding power (...) And then how that can be applied in reality, so that it's in everybody's interest.*

HE environment & SEL training: Tailored to special needs

While remaining inclusive, considering the individual needs of participants is important for the success of any programme. Already present pressure hinders socialising and participating, sometimes making even speaking up a great challenge for neurodivergent students. A possible way of relieving this tension and facilitating the process of integration into the community is having similar people in the smaller-scale groups.

P3: *Let's say, sometimes it's also [difficult] to speak up, someone prefers to speak in writing and someone prefers to speak orally. And whether it's live or online. And it's also a matter of people's choice…*

P3: *(...) [neurodivergent students] are subjected to a lot of atrocities in their lives and maybe that makes them a bit more silent and difficult to ease into [groups], so on the one hand, easing [into groups] should be reinforced somehow. (...) And it is easier if they are surrounded by similar neurodivergent people, because then at least in the group they feel that they are not outsiders. (...) For example, I'm not satisfied with the fact that the university support centre for special students' needs does not have a separate ADHD group, but the autistic people do and this again comes out strange. It's obviously the university's budget, but it makes me feel more isolated, that I could have the opportunity to know someone, even from the [same faculty], but I just don't know them.*

P4: *(...) on the one hand, if you only have students with a specific learning disability, you can pay much more attention to them. However, if it is a step away from segregation, (which is not necessarily a negative segregation, it can also be a supportive one),(...) in a small group setting this can be regulated in terms of the strength of the stimuli for example, to help moderate how you should speak, how you should behave.*

As mentioned earlier, revised operational guidelines for programmes could provide HE students with learning difficulties the support needed to continue participation:

P3: *(...) you might run out of time, arrive late to class and then it's a problem in ADHD circles and if you could come to a self-help class, for example, it wouldn't be so bad if you came later, say half an hour later, and you could just participate in the conversation [that would help].*

Theme 2: Intrapersonal factors

Factors related to students as individuals were discussed by participants, which at the same time act like a base that can then sustain not only coping with a training environment but with higher education as a whole. While being central to one's well-being, these skills are also necessary and impact social life, as in participation, communication, or connecting with others.

Intrinsic motivation

The topic of motivation and whether it should be intrinsic or extrinsic also surfaced during the discussion and was considered important for participation. Participants viewed voluntary participation as ideal and most effective, also noting that due to their voluntary nature, psychoeducational and self-help programmes can effectively reach students willing to participate and they also are more likely to profit from them.

P3: *And the question of motivation. It's also important how much it's worth for [students], how much they can fit it into their timetable if they work alongside [university].*

P4: *I think [SEL training] is effective if [students] go in of their own volition and they aren't forced to attend. Because if I take a class that I am taking on my own, I will do better than the class that I am required to take. Maybe.*

P4: *(...) a self-help group, so to speak, with a specific ADHD theme, with a dyslexia theme. (...) And whoever wants to join can. So they usually find the students who need it and they are obviously not discriminated against.*

Emotional regulation

Participants identified emotion regulation and stress management as likely challenging but essential self-management skills to train in students with learning difficulties.

P1: *I thought of emotion regulation as a [SE] competence. I don't know if it can be classified [among SE skills] or not, but a deficit or lack of it can certainly cause problems.*

P2: *(...) it is tutors' and my experience too that the students are less and less able to absorb this one and a half hour lecture. So, it is one thing that they do not attend lectures in the first place, but probably the reason is that they can no longer concentrate for an hour and a half on a lecture (...) So I am not saying this in a negative way, but now we simply have to approach the students in a different way than they are used to. And that this causes quite serious emotional and stress problems for the students. (...) But I think that stress management and emotion regulation are very important to deal with even at this age.*

P3 also shared their insight on the influence of emotional charge of content and personal preference, which may entail consequences for one's performance:

P3: *(...) it may as well happen that you are reading a text, and then you can either get excited because you're very interested in the subject, or you can get bored.(...) but it's harder to start reading a more boring text, for example, because it doesn't engage you. And what interests you may make you read it so quickly that you skip lines or words, for example. And then you miss the point.*

Quite a contemporary issue concerning emotion regulation and inhibition, social media use also received attention during the focus group session. Participants expressed their thoughts of social media being so central to daily life and communication of all students, both neurodivergent and neurotypical, that its impact cannot be ignored.

P4: *It is harder to learn the inhibitions. Of course, it's not going to be as exciting to read a book if a new stimulus is coming every second on any other digital, social media platform, which is much more exciting to process.*

P3: *Yes, there are the social media platforms and it's a generation that is born into the idea that you use the internet all the time (...) But, those who have the phone in their hands are disconnected from the emotions of others.*

Mentalisation

A subtheme of skills related to mentalisation, attunement, and empathy appeared early on when discussing socio-emotional skills that may be challenging for students with learning difficulties. Though being intrapersonal, mentalisation is inherently related to connecting with others, emphasising that it is essential to communication and cooperation in any form.

P1: *(...) the other one is related to social learning and emotionality, the ability to tune in. Whether it's attunement with the other or attunement with oneself, and it's also connected to the recognition of needs. (...)*

P1: *(...) the recognition of needs. So, what are my needs and what are the needs of the other person, and whether it's separable or is there a situation where it's very much one and you don't even realize which is mine and which is the other person's. And I think that's an area that's really worth looking at.*

P4: *(...)when we talk about [socio-emotional learning], I think of similar things as mentalization skills. How much we are able to empathise with the emotions of others. How much we can perceive what emotions they are communicating to us and how we can process that, even feed back, which in social interaction is essential to not miscommunicate any message that we wish to communicate or that we receive.*

Self-awareness

Self-awareness, knowing oneself was discussed as a great motivator to seek out and participate in programmes or courses about one's condition, which can then lay the ground for further training and self-development. Together with psychoeducation and self-acceptance, discrimination among (and towards) learning difficulties could be reduced.

> P3: *Yes, the "know thyself" part is what motivated me to look for these keywords [related to neurodivergency] when applying to courses, because they are rarely dealt with by professionals, or, if you go to a psychiatrist, they hardly know anything about [ADHD] and think it's a pediatric disease. And even they have to be taught, but it's like they need a patient (...) to showcase how it works.*

> P1: *(...) I would consider it less dependent on which group you are in and more dependent on your own acceptance, education etc. Also, that there is a hierarchy even between the different learning difficulties and I think that sounds very stigmatizing, but there is also a lay hierarchy.*

Communication

An integral element of social life and education is communication, certain aspects of which can pose challenges to students and act as barriers in SEL training. For instance, difficulties with comprehension leading to anger issues was mentioned as an unfortunate byproduct of the current education system:

> P2: (*...) So the difficulties with comprehension. And then it turns into emotional problems, so [participants' own children] have these tantrums while doing homework or whatever. (...) And they have to read more and more, and absorb and interpret, which I think is so stupid. Anyway, that's getting me a bit far.*

Certain ways of communication, especially digital ones from an outside source (e.g. university, teachers) were thought to be ineffective both with atypical and neurotypical students:

> P3: *For example, I always slip up with applying for social support because I always miss something, I don't really understand what and I ask in vain, it's like talking to a wall because [university] only communicate by email.*

> P2: *(...) somehow there's so many forums, or I don't know what, where information comes from and there's no, there's no such summary sites. (...) Yeah, it could be a person... or I don't know, a page on a website where they're all kind of put together…*

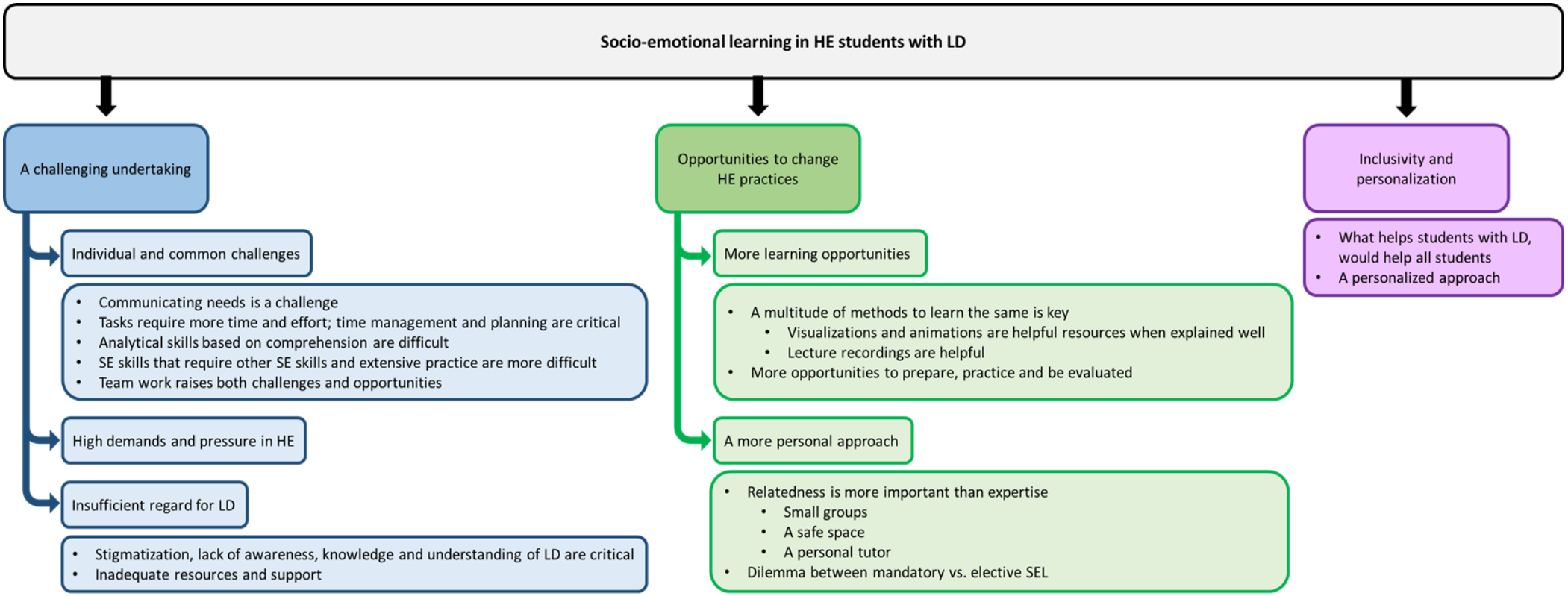
Some practices (small group, community, year groups created) can aid students in the process of managing communication (from a student perspective). A potential positive aspect of social media use was also recognised, while also connecting communication with the theme of community by mentioning that being in smaller groups helps with the sense of belonging and the spread of information:

> P3: *Let's say, sometimes it's also [difficult] to speak up, someone prefers to speak in writing and someone prefers to speak orally. And whether it's live or online. And it's also a matter of people's choice.*

> P4: *(...) it helps and compensates for the lack of information, for example, that we have a self-organized Facebook year group, started by the Student Council. They made a Facebook group for each year group, where information flows and it's very useful and requires relatively small resources to do it (...)*

> P4: *There are universities where the students are divided into groups and students in group one take all their classes with group one in the first year. And even though this is against the Bologna system, because you have more freedom to choose your classes, but you don't get to know anybody and it's like a study group, people in a group, because most of the classes are shared and there is always someone to turn to.*

Appendix 6: Integrated thematic map



Appendix 7: Survey protocol

Start of Block: Cognitive LD

In the following survey, we will use the term 'cognitive learning difficulties'. For the purpose of this survey, cognitive learning difficulties refer to impairments in attention, memory, thinking, listening, and language, including speaking, reading, writing, and spelling. Examples are dyslexia and attention deficit disorder.

End of Block: Cognitive LD

Start of Block: SkillsMCQs_SelfAware

The following questions pertain to **self-awareness** skills.
Examples of self-awareness are: understanding values, having a sense of purpose, believing in your own abilities, believing that you can develop talents, honesty and integrity.

To which degree is it challenging to train **self-awareness** in higher education students with cognitive learning difficulties using traditional text and language based teaching methods?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are digital teaching methods (e.g. apps, online platforms, virtual or augmented reality) helpful to train **self-awareness** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are creative teaching methods, such as music-based teaching methods, helpful to train **self-awareness** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

End of Block: SkillsMCQs_SelfAware

Start of Block: SkillsMCQs_SelfManage

The following questions pertain to **self-management** skills.
Examples of self-management are: emotion regulation, stress management, goal setting, planning and organization, initiative taking.

To which degree is it challenging to train **self-management** in higher education students with cognitive learning difficulties using traditional text and language based teaching methods?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are digital teaching methods (e.g. apps, online platforms, virtual or augmented reality) helpful to train **self-management** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are creative teaching methods, such as music-based teaching methods, helpful to train **self-management** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

End of Block: SkillsMCQs_SelfManage

Start of Block: SkillsMCQs_SocialAware

The following questions pertain to **social awareness** skills.
Examples of social awareness are: perspective taking, empathy, recognizing strengths in others.

To which degree is it challenging to train **social awareness** in higher education students with cognitive learning difficulties using traditional text and language based teaching methods?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are digital teaching methods (e.g. apps, online platforms, virtual or augmented reality) helpful to train **social awareness** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are creative teaching methods, such as music-based teaching methods, helpful to train **social awareness** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

End of Block: SkillsMCQs_SocialAware

Start of Block: SkillsMCQs_Relationship

The following questions pertain to **relationship skills**.
Examples of relationship skills are: communication, team work, conflict resolution, assertiveness, intercultural awareness, leadership.

To which degree is it challenging to train **relationship skills** in higher education students with cognitive learning difficulties using traditional text and language based teaching methods?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are digital teaching methods (e.g. apps, online platforms, virtual or augmented reality) helpful to train **relationship skills** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

Music To which degree are creative teaching methods, such as music-based teaching methods, helpful to train **relationship skills** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

End of Block: SkillsMCQs_Relationship

Start of Block: SkillsMCQs_Decision

The following questions pertain to **responsible decision making**.
Examples of responsible decision making are: critical thinking, problem solving, curiosity, open-mindedness.

To which degree is it challenging to train **responsible decision making** in higher education students with cognitive learning difficulties using traditional text and language based teaching methods?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are digital teaching methods (e.g. apps, online platforms, virtual or augmented reality) helpful to train **responsible decision making** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

To which degree are creative teaching methods, such as music-based teaching methods, helpful to train **responsible decision making** in higher education students with cognitive learning difficulties?

- Not at all (1)
- Slightly (2)
- Moderately (3)
- Very (4)
- Extremely (5)

End of Block: SkillsMCQs_Decision

Start of Block: Training

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Psychoeducation (i.e. increasing knowledge and awareness by providing information)
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Skills training (i.e. repeated practice with intermediate feedback)
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Lectures / plenary / large classroom teaching
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Text book learning
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Interactive small group activities (workshops, role-playing, discussions)

helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Experiential learning (e.g. problem, team or project-based learning, community service learning)
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Coaching, mentoring, counseling or individual training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Technology supported learning (digital or e-learning)
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Arts and music based learning
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Peer group training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Instructor-led training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Self-training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Online training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Face-to-face training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

To which degree do you consider the following teaching methods **helpful** and **feasible** to enhance socio-emotional learning in students with cognitive learning difficulties in higher education?

	Blended training
helpful (1)	▼ Not at all (1 ... Extremely (5)
feasible (2)	▼ Not at all (1 ... Extremely (5)

End of Block: Training

Start of Block: Inclusivity

To which degree do you agree with the following statement? Socio-emotional learning in higher education should be taught in an inclusive way (i.e. the same for all students from different backgrounds and abilities).

- Strongly disagree (1)
- Somewhat disagree (2)
- Neither agree nor disagree (3)
- Somewhat agree (4)
- Strongly agree (5)

End of Block: Inclusivity

Start of Block: Open questions

What can facilitate socio-emotional learning in higher education for students with cognitive learning difficulties?

_____

What can hinder socio-emotional learning in higher education for students with cognitive learning difficulties?

_____

Which other teaching methods would you suggest to teach socio-emotional learning in students with cognitive learning difficulties in higher education?

_____

End of Block: Open questions

Start of Block: Demographics

I identify myself as
- agender (1)
- genderfluid (2)
- man (3)
- non-binary (4)
- questioning or unsure (5)
- woman (6)
- prefer to not disclose (7)
- other (8)

My age in years is:

_____

I am a student in higher education.
- Yes (1)
- No (2)

Display This Question:

If I am a student in higher education. = Yes

Which year are currently you in?
- Bachelor year 1 (1)
- Bachelor year 2 (2)
- Bachelor year 3 (3)
- Bachelor year 4 (4)
- Master (5)

_____

Display This Question:

If I am a student in higher education. = Yes

Which program do you study?

_____

Display This Question:

If I am a student in higher education. = No

My profession is:

_____

Display This Question:

If I am a student in higher education. = No

I am involved in teaching socio-emotional skills.

- Yes (1)
- No (2)

I have participated in socio-emotional skills training before.

- Yes (1)
- No (2)

I consider myself to have learning difficulties.

- Yes (1)
- No (2)

Display This Question:

If I consider myself to have learning difficulties. = Yes

Which of the following learning difficulties do you experience? (Please select all that apply.)

1. Speaking (1)
2. Reading (2)
3. Writing (3)
4. Spelling (4)
5. Other language difficulties (5)
6. Mathematical calculations (6)
7. Listening (7)
8. Thinking (8)
9. Attention (9)
10. Memory (10)
11. Other (11)

Display This Question:

If Which of the following learning difficulties do you experience? (Please select all that apply.) = Other

Or Which of the following learning difficulties do you experience? (Please select all that apply.) = Other language difficulties

Which other learning difficulties do you experience?

In my own words, I would explain my interest in the role of socio-emotional learning in higher education students with learning difficulties as follows:

Page Break

Think of a ladder (see image below) 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.

SES Where would you put yourself on the ladder?

0 1 2 3 4 5 6 7 8 9 10

Choose the number that best represents where you would be on this ladder. ()	

End of Block: Demographics