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REVIEW AND SYNTHESIS

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Self-directed learning—a framework for inclusion 'In' and 'Through' Education – A systematic review

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Abstract

There is a dearth of knowledge regarding how self-directed learning and inclusion relate as concepts. In this paper, we explore how self-directed learning and inclusion are discussed together in the educational literature. With the aim of advancing our conceptual and theoretical understanding in this regard, we present the findings of a systematic review that critically explores the relevant literature on self-directed learning and inclusion. We included peer-reviewed texts with an explicit focus on both inclusion and self-directed learning in any educational phase. There were no restrictions on date of publication or methodology adopted. We searched five databases in July 2023: British Education Index, Education Research Complete, ERIC, International Bibliography of the Social Sciences, Australian Education Index, and Web of Science. We located 19 studies published in the past 15 years—8 studies concerned childhood education settings and 11 studies were written in the context of adult education, with the majority from higher education. We analysed the texts using thematic analysis and key findings were that: (1) self-directed learning can be used as a framework to promote both inclusion 'in' education (as in pedagogical methods and strategies) and 'through' education (as in educational products and outcomes); and (2) engaging with self-directed learning has the potential to further inclusion and social justice aims in

education. However, these findings can only be interpreted by taking into consideration the tensions associated with inclusion that were rarely acknowledged in the included studies.

KEYWORDS
inclusion, inclusive pedagogy, lifelong learning, self-directed learning, social justice

Context and implications

Rationale for this study: To date there is limited literature on how self-directed learning and inclusion relate to each other.

Why the new findings matter: Our findings suggest that the connections between self-directed learning and inclusion are not unproblematic, which reflects the complexities of inclusion.

Implications for teachers and researchers: Key insights gained through this process include that (1) self-directed learning can be used as a framework to promote both inclusion 'in' education (as in pedagogical methods and strategies) and 'through' education (as in educational products and outcomes); and (2) engaging with self-directed learning has the potential to further inclusion and social justice aims in education. However, it is essential to consider that the majority of studies reviewed in this present work were small-scale and cross-sectional in nature. Therefore, this field remains an important open door for further research.

INTRODUCTION

To date there is limited literature on how self-directed learning and inclusion relate to each other. A key United Nations (2015) Sustainable Development Goal (Goal 4, p. 14) is to 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all.' In the literature, self-directed learning has been identified as a foundational tool for lifelong learning (Boyer et al., 2014), and a handful of studies have also employed self-directed learning as a pedagogical framework to promote inclusion in education (e.g., Edwards et al., 2021; Suarez-Grant & Haras, 2022). Nonetheless, to the knowledge of the present authors, there are no studies to date that specifically examine the links between self-directed learning and inclusion.

In this paper, we explore the connections between self-directed learning and inclusion, drawing on the findings of a systematic review of studies that have combined both constructs in educational settings. We discuss self-directed learning as a way of achieving inclusion 'in' education (i.e., linked with pedagogical methods and strategies); and 'through' education (i.e., linked with educational products and outcomes). Although useful links can be drawn between self-directed learning and inclusion, we also highlight the complexities of inclusion (Norwich, 2024) and how these may complicate some of the key ideas we discuss.

Inclusion

'Inclusion' is a widely discussed but fragmented notion, which is subject to different interpretations. From a European perspective, it has often been linked to values such as equity, social justice and respect (Arnesen et al., 2010; Cigman, 2007); however, such values are understood and implemented differently by different people, thus leading to ambiguities and tensions. Felder (2018) notes that: 'although there seems to be broad consensus on a superficial level, there is much more ambiguity if one looks deeper into the values often associated with inclusion' (p. 55). Studies, for example, have shown how differently the notion of respect can be understood by different people—more particularly, as drawing attention away from difference to avoid potential stigmatisation; or as embracing difference and individuality (Cigman, 2007; Koutsouris, 2014; Koutsouris et al., 2020).

There are also concerns that inclusion, as a concept, might have lost its critical edge and is often reduced to 'chatter' (Oliver, 2013) or 'technicist' approaches that underestimate its complexities and tensions. As Allan (2007, p. 19) argues, 'inclusion is and should be a struggle' and requires 'significant cultural and political changes in practice and thinking'. Concerns about inclusion have been reported widely over the years and more recently (e.g., Done & Andrews, 2020; Norwich, 2024; Reeves et al., 2020; Slee, 2018).

Within education, inclusion was mainly (and in some contexts still is) associated with disability (Ainscow, 2020), with people having different visions of what inclusion involves, such as all children learning together in the same school community (Booth & Ainscow, 2002), or pursuing academic and social participation irrespective of where education takes place (Warnock, 2005). Inclusion, though, is increasingly seen as being about all students, a response to classroom diversity (Ainscow, 2020); and has been related to the idea of accommodation of learners with different needs and requirements, that is, the expectation that educational institutions will change in response to their students, rather than assimilate them into pre-existing school structures (Cline & Frederickson, 2009).

Inclusive pedagogies

The fragmentation of inclusion is evident in the different ways it has been translated into pedagogic principles and decisions. At the heart of inclusive pedagogies is the notion of treating all students with respect; however, as discussed, respect as a value can be translated into practice in different ways depending on whether difference is understood as a marker of individuality or as stigmatising (Cigman, 2007; Koutsouris et al., 2020). Failing to recognise difference, though, could lead to loss of opportunities and restrictions to participation (Norwich, 2024).

Different understandings of respect have also informed different approaches to pedagogy, with many influential approaches emphasising treating students in similar ways to avoid the stigma that difference can bring. For example, Florian and Spratt (2013) note that 'Inclusive pedagogy is an approach to teaching and learning that supports teachers to respond to individual differences between learners but avoids the marginalisation that can occur when some students are treated differently' (p. 119). This approach is a response to learning that has been differentiated to such an extent for some students in the classroom that ends up isolating them from their peers (Florian & Beaton, 2018). Another example of this way of thinking about inclusion is the Universal Design for Learning (UDL)—the idea that general teaching, curriculum and assessment are planned in such a way as to attempt to cover the needs of all students (Meyer et al., 2014). Addressing the needs of all students (at the same time) can be seen as both the unique selling point of the approach, but also one of its weaknesses, with critiques emphasising a lack of clarity in definition and processes,

challenges with implementation, and insufficient evidence of its effectiveness (e.g., Zhang et al., 2024).

We also argue that there is an inherent contradiction in pedagogical approaches that emphasise similarity over difference that lies in the desire to respond to individual learner differences (which implies some kind of recognition of and response to difference) while avoiding treating students differently. It is not clear how both can be achieved at the same time. This tension is described as the dilemma of difference (Norwich, 2024): that is, recognising student difference—with the possible risk of stigmatisation—versus not recognising difference, with the possible risk of limiting opportunities. It is a 'false' dilemma in the sense that both sides are equally desirable, with the aim being to ensure participation but to do so in ways that avoid stigmatisation (Norwich & Koutsouris, 2020).

Although the dilemma of difference is ingrained in all approaches to inclusive teaching, it is not always openly discussed, with the focus often drawn *away* from tensions towards more 'practical' solutions. One example of such an approach is outlined by Finkelstein et al. (2021) and Lindner and Schwab (2020) who have explored inclusive pedagogies as a set of seemingly 'uncontroversial' practices organised across five themes: collaboration and teamwork, determining progress, instructional support, organisational practices, and social, emotional and behavioural support. The assumption here is that 'an inclusive teacher should essentially be competent in [these] five areas' (p. 755), but such approaches do not acknowledge the tensions or challenges involved. Another example is Martin et al. (2019) who discuss inclusive pedagogies (UDL in particular), largely in the context of access arrangements.

In this respect, a critical systematic review of the international English language-based literature on 'inclusive pedagogies' in the UK equivalent of secondary school (students aged between 11 and 16 years, Koutsouris et al., 2023) found that despite some commonalities (e.g., empowering student voice), there was fragmentation when it comes to how 'inclusive pedagogies' were conceptualised and linked to practice. Inclusive pedagogies were also largely seen to be about all students (student diversity) and less about students with disabilities, and even in the latter case, distinctions between 'mainstream' and 'special' were often challenged. Given this focus on students, it was surprising that student perceptions of inclusive pedagogies were found to be less explored. Tensions associated with inclusion (e.g., between a focus on commonality and difference) were to some extent acknowledged, but in limited cases. A key conclusion was that the authors generally felt that there was no clear direction for pedagogy either in terms of theory or practice, a paucity of new ideas with 'established' ways of thinking being recycled, and little desire to engage with the tensions and struggles of inclusion.

Furthermore, Koutsouris et al. (2023) also found that inclusion was in many cases associated with other approaches seen as sharing similar philosophies and purposes—and mainly differentiation, co-teaching and student-centred learning approaches. In some cases, these approaches were used as a framework for inclusion and in other cases even as a synonym (Koutsouris et al., 2023). Self-directed learning has also been linked to inclusion (e.g., Henry & Patterson, 2022), but to our knowledge, this is less well-explored to date. We explore these links in the following sections.

Self-directed learning

Self-directed learning is a pedagogical framework that can be applied to educational settings to promote lifelong learning (Bagnall & Hodge, 2022). It does not represent a 'traditional' form of learning, but rather relates to a process in which the learner retains primary control of directing their learning means and objectives, with or without the help of others (Caffarella, 1993; Knowles, 1975; Mncube & Maphalala, 2023).

The self-directed learning construct can be linked to several humanistic assumptions (Elfert, 2023; Merriam & Baumgartner, 2020; Rogers, 1969), which emphasise the importance of considering individuality in pedagogical practice. Therefore, learner choice (with or without the support of others) is celebrated, where the learner maintains primary control in directing the means ('how') and objectives ('what') of their learning process (Knowles, 1975; Morris, 2023).

Moreover, self-directed learning aligns with constructivist epistemology, which places an emphasis on individual meaning-making, differential personal histories, and real-world learning application (Jonassen, 1999; Seraji & Musavi, 2023). Jonassen (1999, p. 2018) outlined that constructivist learning environments place a central emphasis on context, tending to involve a question, issue, problem or project 'that learners attempt to solve or resolve'. It is therefore a different pedagogical process compared to rote learning, which may be present in traditional teacher-directed learning forms (Knowles, 1970, 1980), where commonly 'facts' are taught with their contextual information removed (Dewey, 2010).

The forthcoming sections identify that self-directed learning is viewed as (1) a meta-competence that can be fostered 'through' formal schooling; and (2) a form of human learning that can be used as a pedagogical framework 'in' education to foster participation (Lazenby, 2016).

Self-directed learning: A meta-competence that can be a product of education fostered 'through' formal schooling

Self-directed learning is a meta-competence—it enables individuals to develop, learn new and update knowledge, skills and competencies, allowing them to engage in competent lifelong learning that, amongst other benefits, is fundamental for meeting the demands of our rapidly changing world (Morris, 2023; Morris & König, 2020). Self-directed learning competence helps people attain a greater chance of career success and provide a certain level of protection against unemployment (Barnes et al., 2016; Seibert et al., 2001). Self-directed learning can be conducted through any learning means, such as face-to-face interactions as exemplified in the classic study by Gibbons et al. (1980). Notably, some scholars have pointed out that the advanced digital technologies available today present as an opportunity to support the facilitation of self-directed learning (e.g., Bonk & Lee, 2017).

The notion that formal education might provide an important opportunity to promote competence in self-directed lifelong learning has been highlighted by scholars for decades (e.g., Rogers, 1969). Fostering self-directed learning competence may contribute towards inclusion 'through' education, in the sense that self-directed learning competence will provide lifelong benefits that contribute to individuals being able to fully take part in society—thus, an important outcome in respect of working towards social justice (Bagnall & Hodge, 2022). We should highlight that this 'contribution'—important as it may well be—does not undo structural inequalities that may be present in a particular context (Ball, 2021).

Self-directed learning: A form of learning that can be used as a pedagogical framework 'in' education

As well as the potential lifelong benefits provided to the learner and societies 'through' fostering self-directed learning competence, another key consideration is the application of the self-directed learning framework to enable inclusion 'in' educational settings. There are four dimensions of the self-directed learning construct: responsibility, process, context and characteristics of the learner (Morris, 2023; Sawatsky et al., 2017).

It is important to highlight the point that self-directed learning is a construct that was popularised in the field of adult education. Knowles (1970) initially theorised that in contrast to childhood education that was commonly teacher-directed, adults have a deep psychological need to be self-directed and adult education should therefore facilitate self-directed learning. However, such theoretical assumptions were not empirically grounded and were contested. For instance, Elias (1979, p. 252) argued that 'the education of children and adults will be advanced only if the unity between the two is maintained'. Subsequently, Knowles (1980) updated his perspective to acknowledge that both children and adults can pursue self-directed learning. More recently, fostering self-directed learning competence through formal schooling has been advocated by prominent educational international organisations. For example, the European Commission (2018) states that: 'Individuals should be able to identify and set goals, motivate themselves, and develop resilience and confidence to pursue and succeed at learning throughout their lives' (p. 10).

Knowles defined the process of self-directed learning as:

> a process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes.
>
> (Knowles, 1975, p. 18)

Knowles stated, 'we are talking about a basic human competence—the ability to learn on one's own' (1975, p. 17). On this, Arnold (2015, p. 7) highlighted the point that self-directed learning is '*the* single ability which gave humans the advantage in the evolutionary competition of the species'. Tough's (1971) empirical work in this respect was also seminal. Tough conducted semi-structured in-depth interviews with Canadian adults and children about one's own 'learning projects', defined as 'major, highly deliberate effort to gain certain knowledge and skill (or to change in some other way)' (p. 1). This was the first empirical study to identify that all humans directed their own learning projects (including means and objectives) to various amounts, and that such a way of learning represented a natural and common learning process used throughout our lives.

That said, self-directed learning is not yet a common pedagogical framework employed in educational settings worldwide, especially in formal education settings for children (Morris & Rohs, 2023). When considering the possibility of facilitating self-directed learning in formal educational settings, Merriam and Baumgartner (2020) highlighted the point that societal factors at particular points in time will likely determine whether learners are 'permitted' to control their learning means and objectives. As such, the pedagogical approaches employed within many formal educational settings worldwide continue to be based on 'traditional' learning forms: involving the transmission of knowledge and skills directed primarily by the teacher (Nasri, 2019).

Moreover, studies on self-directed learning have highlighted the extent to which learner's personality characteristics influence their propensity, preference, skill and intrinsic motivation towards self-directed learning (Alharbi, 2018; Barry & Egan, 2018). Empirical studies seem to agree that there is a strong correlation between learner self-directedness with conscientiousness, openness, optimism and work drive. Empirical evidence in the field identifies that there is a wide variety of 'readiness' (Slater et al., 2017), which includes the ability to take responsibility (Garrison, 1992, 1997), for self-directed learning within a cohort of students. Thus, learners are likely to need a varied level of support with self-directed learning.

In this section we have outlined the importance of fostering self-directed learning competence for lifelong learning. We have also outlined above that some studies have employed self-directed learning as a pedagogical framework to promote inclusion in education, but no

study to date has specifically examined in depth the links between self-directed learning and inclusion, which is the purpose of the present study.

METHODOLOGY

We conducted a systematic review of the literature (Grant & Booth, 2009) to explore how inclusion and self-directed learning have been used together in the educational literature, with the aim of advancing conceptual and theoretical understandings in this area. The aim of a systematic review is to capture relevant information regarding a field of research in a rigorous way in line with established guidelines, with clear and transparent reporting of the methods and steps undertaken so that the review could potentially be replicated (Grant & Booth, 2009). Systematic reviews also facilitate the inclusion of studies utilising different methodologies (quantitative, qualitative, mixed methods) in order to provide a thorough and holistic understanding of a research field (Gough et al., 2017). Epistemologically, this review is informed by the model of the 'configurative' review as outlined by Gough et al. (2012): in this case, deeper understanding and interpretation of existing ideas and theory relating to inclusion and self-directed learning were sought to identify variation and complexity in dominant thinking, with the aim to facilitate knowledge expansion. This differs from 'aggregative' reviews where reviewers often adopt a realist position and seek to appraise an evidence-base to ascertain 'best practice' or 'what works' in relation to a practice or strategy to inform decision-making. This tends to involve statistical aggregation via meta-analysis (Gough et al., 2012). In contrast, 'configurative' reviews, such as this one, tend towards interpretive understanding and narrative mapping of complex phenomena (Appendix 2).

The reporting in this paper is guided by the Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) Statement (PRISMA, 2020).

Data collection

Scoping and search term development

As recommended by Siddaway et al. (2019), we commenced this review by familiarising ourselves with the research literature in order to give us a sense of the scope of the review. We conducted an initial search of the topic area which involved collaborative discussion among the four authors regarding possible search terms based on our core concepts (inclusion, self-directed learning, education) and typing test search terms into key databases (i.e., ERIC, British Education Index, Education Research Complete). From this, we established a final set of search terms. We sought to keep the terms as open as possible to capture a wide range of relevant literature, and because initial test searches indicated that the area was not expansive. The following search terms were input into title and abstract fields and cross-searched as outlined in Table 1.

Databases

Six electronic databases were searched on 24 July 2023: British Education Index (BEI), Education Research Complete (ERC), ERIC, International Bibliography of the Social Sciences (IBSS), Australian Education Index (AEI), and Web of Science (WoS). These databases were chosen for breadth of coverage as they incorporate different disciplinary areas: core education journals, as well as those that cover science, social science and the arts and

TABLE 1 Search strings.

Databases	Search string
BEI, ERIC and ERC via EBSCO	(inclusivity ti. ab. OR inclusive ti. ab. OR inclusion ti. ab. AND 'self-directed' ti. ab.)
IBSS, AEI via ProQuest	(inclusivity ti. ab. OR inclusive ti. ab. OR inclusion ti. ab. AND 'self-directed' ti. ab.)
Web of Science	(inclusivity ti. ab. OR inclusive ti. ab. OR inclusion ti. ab. AND 'self-directed' ti. ab.)

TABLE 2 Inclusion and exclusion criteria.

Inclusion criteria	Exclusion criteria
Published in the English language	Texts are not published in English
Pertain to any educational stage, i.e., preschool, primary school, high school, further education, higher education, life-long learning	Texts do not have a focus on education
Utilise any methodology, e.g., quantitative, qualitative, mixed methods, literature review, theoretical/opinion piece	N/A
Must have an explicit focus on both inclusion and self-directed learning, as broadly defined	The focus is on either inclusion or self-directed learning rather than both, or the focus on the two concepts is not explicit enough
No publication date restriction	N/A

humanities more generally (i.e., IBSS, WoS). We did not impose a date restriction on time of publication, which helped us to capture as much relevant literature as possible (Siddaway et al., 2019). We limited the results to peer review texts, as explained below in the Quality section.

Inclusion and exclusion criteria

Criteria by which the texts were judged for inclusion are summarised in Table 2.

Selection process

Following database searching, titles and abstracts of the located texts were checked for relevance. An initial sample of 25 texts were piloted amongst the four reviewers (T, Author 2, Author 3, Author 4) to agree on screening decisions, and we refined our inclusion criteria following this process. The titles and abstracts of the 230 (non-duplicate) texts (see Figure 1) were then screened for relevance by Author 4, who classified each text as potential includes or excludes according to our inclusion criteria. These decisions were double checked by Author 3. We then obtained full text copies of the 31 potentially relevant texts. Another pilot stage was conducted amongst the four reviewers using five full texts, in which we engaged in collaborative discussion to ensure our full text decisions were consistent. All retrieved full texts were then assessed for inclusion by Authors 1 and 2, with involvement of Author 3 where disagreements occurred.

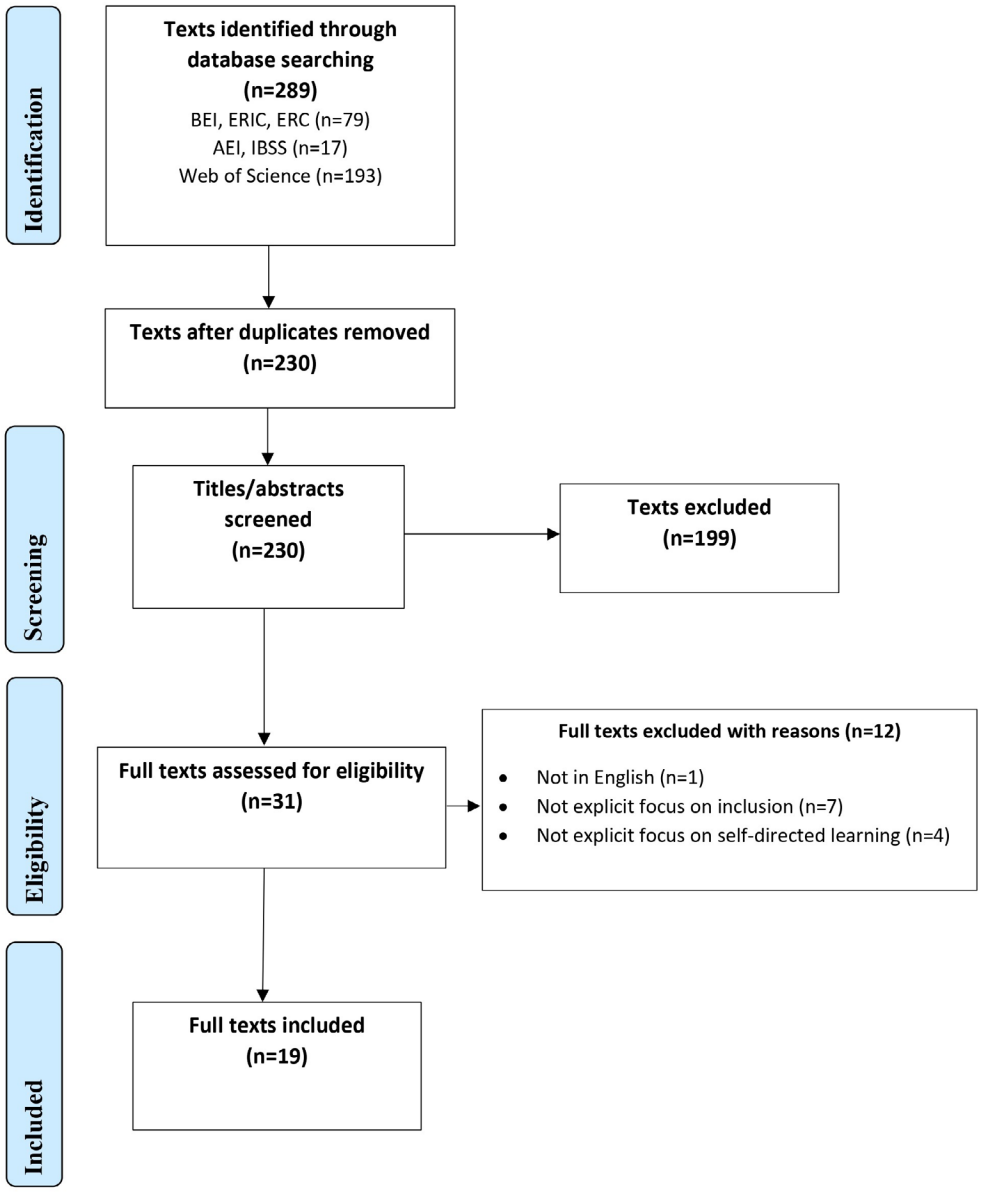

FIGURE 1 PRISMA flow diagram of the search process.

EndNote X9 software was used to manage the texts and screening process, which involved transporting the titles and abstracts of the texts located through the database searches into a shared EndNote library and removing duplicates using the function within the software. We then created a column to record our screening decisions, that is, 0 = include, 1 = exclude. We created a new EndNote library with 31 texts for the full text screening stage. See Figure 1 for a PRISMA flow diagram of the search process and number of texts located, included and excluded at each stage of the review.

Quality

As Gough et al. (2012) note, there is a lack of agreement regarding the practice of quality assessment by those conducting configurative reviews; whereas some seek to adopt established strategies employed in aggregative reviews, other configurative reviewers reject the assumption that quality can be assessed in a mechanical and 'scientific' way. We align with the latter position and thus we used Dixon-Woods et al.'s (2006) quality criteria to evaluate the texts. This requires that texts are judged primarily according to relevance to the aims of the review rather than on methodological standards in order to capture a wide variety of concepts. Dixon-Woods et al. (2006) do, however, advocate that 'fatally flawed' studies are removed before analysis. We therefore limited our search results to peer-reviewed texts to ensure a base level of quality, as peer review commonly involves that studies are reviewed by at least two experts in the field. All 19 included texts in this review were judged to be relevant by the authors; this process involved at least two of the review team reading the full texts and deciding whether we felt the text helped to address the aims of the review. Any disagreements were resolved through constructive discussion between the two reviewers involved, with referral to a third reviewer where necessary. Our approach to quality also involved adopting reflexive techniques and making clear in our findings and discussion the credibility of the texts included and what they are—and are not—contributing to the topic at hand, theoretically and conceptually (Dixon-Woods et al., 2006).

Data charting

A bespoke data charting form was developed for this review in Microsoft Excel (see Appendix 1). Data charted included: first author, date, country, methods, participants, who inclusion is for, how inclusion is understood (including whether it was framed 'in' or 'through' education), and how self-directed learning is understood. Data charting was conducted independently by two reviewers (Authors 1 and 2), who examined all records in full and input their notes into the data charting form. This was done following a pilot stage where the two reviewers extracted information from a sample of five texts and checked each other's charting to ensure consistency.

Data analysis

The records were analysed using a six-phase inductive thematic analysis, whereby the records included in the review were given full consideration in respect of the research questions (Braun & Clarke, 2006). The data analysis process was not necessarily linear; indeed, the initial steps of the thematic analysis process were revisited at certain points over the course of the data analysis process.

Sentences, parts of sentences and groups of sentences were assigned one or more code(s). In a second round of coding, new codes were defined, and the initial analysis revisited; likewise, themes were defined and redefined a number of times. Notably, a 'best-fit' approach was taken to data classification into codes and themes.

Limitations

Although we have sought to conduct a rigorous, transparent and comprehensive review, there are some methodological limitations to acknowledge. We included only English

language texts in this review due to the time and resources available, which could introduce language bias (Pieper & Puljak, 2020). We also could have increased the scope of the search further by conducting hand searching of key journals (e.g., *International Journal of Inclusive Education*) and citation chasing. However, given the purpose of this configurative review, which is to explore concepts and theory rather than provide an exhaustive and objective aggregative summary (Gough et al., 2012), we felt that the texts located offered a trustworthy and credible insight into understandings in the field (Lincoln & Guba, 1985).

FINDINGS

A concise summary of the texts included in the review are presented in Table 3.

It is interesting to note that all 19 studies retrieved through the systematic review were published within the last 15 years, which shows that research interest connecting these two areas is relatively recent. Prior to a discussion of the themes, we first present those studies that focused on compulsory education, and second present those on further or higher education. Within each of these two broader categories, we distinguish between studies exploring self-directed learning as a way of promoting inclusion 'in' and 'through' education.

Studies focusing on compulsory education

Eight studies retrieved through the systematic review process concerned childhood educational settings.

Self-directed learning to enable inclusion 'through' education

Two studies highlighted the potential for self-directed learning to promote inclusion 'through' education (Drigas et al., 2023; Gratton, 2019). The work of Drigas et al. (2023, p. 65) advocates for 'school[s] for the future' that meet the United Nations' (2015) goal of ensuring inclusive, equal, and fair quality education and promoting lifelong learning opportunities for all: targeting social justice via education, and what an education can do for learners after they leave formal schooling. The authors advocated that schools for the future must give students the 'freedom to express their creativity, cultivate their imaginations, and approach knowledge through entertainment, their interests, and their learning profiles' (Drigas et al., 2023, p. 77).

Furthermore, Gratton (2019) outlines the importance of considering pedagogy that empowers children by preparing them for an unknown and challenging future. Gratton highlights the point that 'traditional' education forms are not appropriate to meet this goal, and rather education is a prime opportunity to prepare learners for self-directed lifelong learning. Gratton also stresses the importance of collaborative work in terms of its potential to foster social cohesion.

Self-directed learning to enable inclusion 'in' education

The majority of studies within the context of childhood educational settings discussed inclusion in terms of what self-directed learning can do 'in' a formal education childhood setting. For instance, the empirical study from Edwards et al. (2021) identified social inclusion as a key outcome. In these programmes children had the freedom to choose any activity, within a

TABLE 3 Details of texts included in the review.

Author(s) (year)	Open access	Country	Methods	Participants – And numbers	Who is inclusion for?	Approach to inclusion	Approach to self-directed learning
Aryeh-Adjei et al. (2023)	No	Ghana	Empirical—interviews	17 HD students with disabilities	Adults	Quality education for all students	Accessibility arrangements to support self-directed learning
Drigas et al. (2023)	Yes	Greece	Theoretical/opinion piece	N/A	Children/young people	Emotional intelligence, SEL	Lifelong learning opportunities for all
Edwards et al. (2021)	No	Canada	Empirical—interviews and observations	17 students with and without disabilities (aged 8–17 years)	Children/ young people	Social inclusion	Arts-based activities for inclusion and self-directed learning
Flach et al. (2023)	Yes	UK	Theoretical/opinion piece	N/A	Adults	Transitions for underrepresented student groups	Self-directed learning in the curriculum
Gratton (2019)	No	UK	Empirical—mixed methods	30 students (aged 12–13 years)	Children/young people	Inclusive pedagogies	Collaborative group learning
Greuter et al. (2022)	Yes	Australia	Empirical—intervention evaluation	10 participants with ID (aged 19–31 years)	Adults	Social Stories programme	Games to support to self-directed learning
Heath et al. (2017)	No	Australia	Theoretical/opinion piece—but also draws on an empirical project	N/A	Adults	Inclusion in HE	Online professional development
Henry and Patterson (2022)	Yes	New Zealand	Reflective piece involving a discussion	Two neurodiverse learners	Adults	Neurodiversity	Student Centred Learning and connections to self-directed learning

TABLE 3 (Continued)

Author(s) (year)	Open access	Country	Methods	Participants – And numbers	Who is inclusion for?	Approach to inclusion	Approach to self-directed learning
Holgate (2015)	No	UK	Semi-structured interviews	Architecture HE students ($N=6$)	Adults	Inclusive curriculum	Nurturing authentic skills for lifelong, self-directed learning
Hughes and Morrison (2020)	Yes	USA	Empirical—case studies	20 elementary schools and 60 teachers	Children/young people and adults	Innovative learning spaces	Spaces redesigned to facilitate greater collaboration, differentiated instruction/learning
Kimball et al. (2016)	No	USA	Empirical—focus groups	31 participants (Student Affairs professionals) from 21 higher education institutions across New England	Adults	Disability-related support	Professional development workshops to support self-directed learning
Lee and Lee (2009)	Yes	South Korea	Empirical—intervention evaluation	3 students with intellectual disabilities in grades 5 and 6 and their typically developing peers and teachers	Children/young people	Instructional rubrics on class engagement behaviours	Students self-monitoring of their own performance
Lonie and Dickens (2016)	No	UK	Empirical—focus groups	40 young people (aged 16–25 years, in 'Wired4Music', a youth leadership programme run by 'Sound Connections' based in East London)	Young people	Musical habitus and becoming	Self-direction and agency for young learners
Millman (2013)	Yes	Australia	Theoretical/opinion piece	n/a	Adults	Higher Education transition for diverse students	Cultivate student confidence

(Continues)

TABLE 3 (Continued)

Author(s) (year)	Open access	Country	Methods	Participants – And numbers	Who is inclusion for?	Approach to inclusion	Approach to self-directed learning
Sahlberg (2021)	Yes	Australia and Finland (schools)	Theoretical/ opinion piece	N/A	Children/young people	Social inequalities	Curriculum planning
Shiner and Howe (2013)	No	UK	Empirical—interviews and focus groups	13 new GPs	Adults	Transition to employment	Balancing student independence and guidance
Soegiono et al. (2018)	Yes	Indonesia and Turkey	Literature synthesis (of 15 studies)	N/A	Children/young people	Deschooling—education beyond formal school attendance	Recognition of learning activities outside of the school
Suarez-Grant and Haras (2022)	No	USA	Teaching programme overview	N/A	Adults	Student diversity	Adult learning theory
Swart and Oswald (2008)	No	South Africa	Empirical—interviews	5 primary school teachers	Children/young people and adults	Recognition and valuing of human diversity	Experienced teachers become apprentices in learning

loose activity structure. The authors noted that few studies emphasise the importance of offering multiple activities simultaneously, but also that adopting such a child-driven approach with less structured time may be difficult in other settings, such as school (due to resource limitations, e.g., funding, staff and curricular pressures).

Moreover, Hughes and Morrison () highlighted the importance of educational space, designed to foster greater inclusivity, understood in ways such as educators providing learning materials in accordance with the cultural backgrounds of the learners. Hughes and Morrison (2020, p. 13) made reference to the 'natural curiosity movement' that was established in 2011 in Canada, which concerned applying a pedagogical framework that combined inquiry-based learning and experiential learning. Notably, some of the schools designed the environment in ways in which much of the power—in terms of control of the learning process—was in the hands of the students.

Lee and Lee (2009) described an intervention and evaluation of instructional rubrics with three students with 'mild mental retardation' (p. 396) (the label used in the study) in grades 5 and 6, students without disabilities and teachers. The study highlighted the importance of tools such as an institutional rubric to assist students to systematically take control to direct the self-monitoring of their learning.

Furthermore, the theoretical study from Sahlberg (2021) was framed within the context of social inequalities in the COVID-19 pandemic, arguing for the need for education to be more inclusive, fair and equitable for all. They referred to Finnish schools as an example in which the foundation for pedagogical planning included facilitating self-directed learning through projects and real-life problem solving.

Moreover, Soegiono et al. (2018) discussed 'deschooling' (p. 256) as a concept to capture alternative delivery methods to achieve education for all. They discussed the potential for self-directed learning to be used as a tool for learning, but highlighted the challenges of implementing it, such as that students may not hold the prerequisite cognitive skills to be successful in the process.

Finally, the empirical study by Swart and Oswald (2008) highlighted the importance of recognising and valuing human diversity within our educational systems. This included also viewing the teacher as a self-directed lifelong learner where, over time, experienced teachers 'become apprentices in learning how to accommodate the dynamic, diverse learning needs of the children in their classrooms' (p. 96). This theme was more pertinent in studies on further or higher education.

Studies focusing on further and higher education

Eleven studies were written in the context of adult education, with the majority of these from higher education.

Self-directed learning to enable inclusion 'through' education

The empirical study from Shiner and Howe (2013) is an illustrative example of a study on the importance of fostering the self-directed learning competences that are required when transitioning into the workplace. They noted how General Practitioner doctors (UK GPs) wished to relinquish dependency and become self-directed learners (with support when required), as this is what they needed to solve and resolve daily work-related issues in their profession.

Self-directed learning to enable inclusion 'in' education

Many of the studies focusing on adult learners identified the potential for self-directed learning in terms of its potential to enable inclusion 'in' learning. All of these studies were written in the context of higher education (apart from one: Greuter et al., 2022), and within these studies there were two distinct aspects of focus in respect of the application and importance of self-directed learning; studies focused on either (1) students or (2) staff.

Seven studies concerned higher education students. In this respect, Flach et al. (2023) identified self-directed learning as a key part of the curriculum but some students, including those with specific learning difficulties (e.g., dyslexia), may require additional support. Likewise, Millman (2013) highlighted that higher education students may first need to foster the inquiry skills necessary for a self-directed learning process. Holgate (2015) highlighted 'traditional assessment' as a barrier to inclusion, which was overcome by offering students choice of submission format, provided that the submission met the assessment criteria and module learning outcomes (the learning objectives thus were teacher-directed). The work from Heath et al. (2017) emphasised the importance of collaboration through 'connecting' to supporting each other. Greuter et al. (2022) also emphasised the importance of co-design and choice as a way of increasing social inclusion.

In addition, Henry and Patterson's (2022, p. 139) reflective work with two neurodiverse learners highlighted the importance of education being 'student centered' and 'highly humanist', placing importance on the student(s) being 'at the center' of the learning process, whether alone, or in collaboration with others. Moreover, Aryeh-Adjei et al. (2023) who interviewed 17 higher education students with disabilities (including 5 visually impaired, 10 with physical disabilities and/or medical conditions, and 2 deaf students) identified that self-directed learning in higher education is a condition for study success. The authors identified that adjustments in students' technology use also requires adjustments in relevant training for students; this was an important conclusion as students commonly 'lacked the relevant and full digital skills to fully navigate the online learning environment' (p. 66).

In addition, two studies highlighted the importance of self-directed learning for higher education staff. Suarez-Grant and Haras (2022) discussed 'inclusive teaching programmes' for staff as those which acknowledge that adult learners have differential prior knowledge and that adults need to apply knowledge to practise in their immediate learning environment. Relatedly, the study from Kimball et al. (2016) noted the need for self-directed learning-based training programmes in order to upskill staff to achieve an 'inclusive' higher education environment, as their training was quickly out of date and required constant updating.

DISCUSSION OF KEY THEMES

Through the analysis process, we identified the following themes that highlight the connections between self-directed learning and inclusion (see Table 4). We discuss these themes below, before raising some critical points arising from this analysis.

Self-directed learning as a framework for inclusion 'in' education

Freedom to choose

Interestingly, many studies referred to inclusion 'in' education in terms of enabling learner choice in educational settings. For instance, Drigas et al. (2023) discussed the need to provide opportunities for learners to express their creativity. More specifically, Edwards

TABLE 4 Thematic connections between self-directed learning and inclusion, with initial codes developed in analysis and studies linked to broader themes (*denoting studies on adult learning, #denoting studies on children/young people).

Theme	Codes	Studies
Self-directed learning to promote inclusion 'in' education		
Freedom to choose	Choice; learner choice; child-driven approach; offering multiple activities simultaneously; freedom to choose; freedom to express their creativity, cultivate their imaginations; personalise learning means; variety of materials; work with others or alone	Aryeh-Adjei et al. (2023)*, Drigas et al. (2023)#, Edwards et al. (2021)#, Henry and Patterson (2022)*, Holgate (2015)*, Hughes and Morrison (2020)*,#
Collaboration, interdependence and social cohesion	Collaboration; co-design; co-create activities with peers and staff; social inclusion; connecting with each other; collaboration with other learners and/or with the teachers; peer assessment; social cohesion; communication skills; communities of practice; interdependence	Aryeh-Adjei et al. (2023)*, Edwards et al. (2021)#, Gratton (2019)#, Greuter et al. (2022)*, Heath et al. (2017)*, Henry and Patterson (2022)*, Holgate (2015)*, Hughes and Morrison (2020)*,#, Lonie and Dickens (2016)#
For all, with or without special learning needs or disabilities	With or without learning disabilities; enable everyone to use self-directed learning; providing solutions to barriers; social inclusion; all learners can fully participate through agency in the learning process; focus on learning process rather than a competition in learning outcomes; with mild mental retardation and their typically developing peers	Aryeh-Adjei et al. (2023)*, Drigas et al. (2023)#, Edwards et al. (2021)#, Flach et al. (2023)*, Gratton (2019)#, Greuter et al. (2022)*, Henry and Patterson (2022)*, Holgate (2015)*, Hughes and Morrison (2020)*,#, Kimball et al. (2016)*, Lee and Lee (2009)#, Sahlberg (2021)#
Learner support	Support each other; underlying assumption that students are 'read' and competent to direct their own learning; additional support; with support when needed; students lacking the requisite cognitive skills might suffer; communities of practice; assumption of independent learning; support	Aryeh-Adjei et al. (2023)*, Flach et al. (2023)*, Heath et al. (2017)*, Holgate (2015)*, Lonie and Dickens (2016)#, Millman (2013)*, Soegiono et al. (2018)#
Self-directed learning to promote inclusion 'through' education		
Lifelong self-directed learning as an important workplace competence	Promoting lifelong learning for all; what education can do for learners after they leave formal schooling; schools for the future; training quickly out of date; education as a prime opportunity to prepare learners for self-directed lifelong learning	Gratton (2019)#, Kimball et al. (2016)*, Shiner and Howe (2013)*
Real-world application	Necessary for solving or resolving daily work-related issues; inquiry-based learning; real-life problem-solving experiential learning; clearer link between assignment format and real-life; diverse learner's experience is highly valued; creating their own purpose and meaning	Henry and Patterson (2022)*, Holgate (2015)*, Hughes and Morrison (2020)*,#, Kimball et al. (2016)*, Sahlberg (2021), Shiner and Howe (2013)*
Self-directed learning to enable professional development over time	Self-directed lifelong learner over time; proactive and reactive to change; informal, 'on the job', unplanned, to meet an immediate need; relinquish dependency; become apprentices in learning; apply knowledge they can use right away; training quickly out of date and requires constant updating	Kimball et al. (2016)*, Shiner and Howe (2013)*, Suarez-Grant and Haras (2022)*, Swart and Oswald (2008)*,#

(Continues)

TABLE 4 (Continued)

Theme	Codes	Studies
Empowerment—to meet the demands of an uncertain future	Empower children by preparing them for an unknown and challenging future; proactive practices; self-direction and agency; pedagogical shift in power from teachers to learners; empowering learners with an ability to thrive and not just survive within an unknown future; not anticipated while in training; empowering learners to meet the demands of an uncertain future; agentic learning process	Gratton (2019)[#], Henry and Patterson (2022)*, Hughes and Morrison (2020)*,[#], Kimball et al. (2016)*, Lonie and Dickens (2016)[#], Sahlberg (2021)[#], Shiner and Howe (2013)*

et al. (2021) gave the example of school children with or without learning disabilities having the freedom to choose any more or less structured activity, where education was set up to offer multiple activities simultaneously. Moreover, Holgate (2015) highlighted 'traditional assessment' as a barrier to inclusion and discussed the importance of offering students choice in assessment formats. The importance of freedom to choose, as a central component of implementing self-directed learning in educational settings, has been highlighted in the literature for some time (e.g., Rogers, 1969).

Collaboration, interdependence and social cohesion

There is further complexity to the meaning of 'freedom to choose' when implementing self-directed learning in formal educational settings. For instance, Greuter et al. (2022) emphasised the importance of co-design and choice to target social inclusion. Gratton (2019) also highlighted the importance of collaborative work in terms of its potential to foster social cohesion. Notably, there were several studies that placed an emphasis on 'social cohesion' between learners with and without special educational needs and disabilities. Especially for those not familiar with self-directed learning theory, the idea that collaboration, interdependence and social cohesion may be linked to self-directed learning may seem somewhat odd. Nonetheless, it was Garrison (1997) who quite clearly highlighted the point that self-directed learning in formal educational settings is inevitably a process of collaboration; celebrating and thus promoting power sharing (Morris et al., 2023).

Inclusion for all, with or without disabilities

This theme emerged in the study of Edwards et al. (2021), who described an 'integrated recreation programme' (p. 1615) with 17 school children with or without learning disabilities, identifying 'social inclusion' as a key outcome. To the knowledge of the present authors, the theme of applying self-directed learning for all, with or without special learning needs or disabilities, has not been a common discussion in the educational literature, albeit its importance has been recognised (e.g., Wehmeyer et al., 2003).

Learner support

Support was also highlighted in the majority of studies as a key consideration in terms of employing self-directed learning as a framework. This was the case for a variety of learners

with or without disabilities, and with learners from a variety of ages. For instance, the study from Shiner and Howe (2013) with new medical GPs in the UK highlighted their wishes to relinquish dependency and become self-directed learners, but to have support when needed. Likewise, Flach et al. (2023) discussed transitions into higher education and identified that some students, including those with specific learning difficulties, may require additional support with self-directed learning. Interestingly, Heath et al. (2017) emphasised the importance of collaboration; specifically in terms of the importance of supporting each other. Millman (2013) highlighted the importance of considering an underlying assumption that students may be 'ready' and competent to direct their own learning, but may need to develop the necessary inquiry skills first. Previous studies from a variety of educational settings agree with this suggestion (e.g., Beckers et al., 2019; Kasworm, 1983; Kicken et al., 2009).

Self-directed learning to enable inclusion 'through' education

Lifelong self-directed learning as an important workplace competence

Lifelong self-directed learning as an important workplace competence was exampled in the work of Drigas et al. (2023) who highlighted the importance of fostering social justice through education, and what an education can do for learners after they leave formal schooling. In this respect, Gratton (2019) highlighted the point that 'traditional' education forms are not appropriate to meet this goal, and rather education is a prime opportunity to prepare learners for self-directed lifelong learning. Elsewhere in the literature, the opportunity of formal schooling to lay the foundation for lifelong learning has been clearly highlighted (e.g., European Commission, 2018; Mazenod et al., 2019), as it is a crucial period in which children begin to develop their behavioural, emotional, social and cognitive skills (Mustafa et al., 2019).

Real-world application

Many studies stressed the role of education to prepare people for working life. For example, Shiner and Howe (2013) stressed that self-directed learning was an essential competence in order to solve, or resolve, daily work-related issues. Hughes and Morrison (2020) identified underpinning pedagogical constructs of inquiry-based learning and experiential learning, which enabled real-world application. Indeed, the connections and combining of self-directed learning and experiential learning is also captured elsewhere in the literature (cf. self-directed experiential learning cycle, Morris & König, 2020). Moreover, this finding reflects the underlying theoretical basis for self-directed learning, where this process of learning concerns purposeful learning—situated in context—involving a 'highly deliberate effort to gain certain knowledge and skill (or to change in some other way)' (Tough, 1971, p. 1).

Self-directed learning to enable professional development over time

Swart and Oswald (2008) discussed viewing the teacher as a self-directed lifelong learner that progresses over time. This has been reflected in the wider literature on self-directed learning, where self-directed learning has been highlighted as a process that provides teachers (and other professionals) continuous opportunities to upskill (Beach, 2017).

Empowerment—to meet the demands of an uncertain future

Empowerment was a theme that emerged in many contexts. For example, the study from Gratton (2019) clearly outlined the positive benefit of self-directed learning: to empower children by preparing them for an unknown and challenging future, and working towards social justice aims (Bagnall & Hodge, 2022). In this respect, the study from Hughes and Morrison (2020) discussed the necessity of a *pedagogical shift in power* from teachers to learners, so that much of the power in the process of learning was in the hands of the learners. The study from Shiner and Howe (2013) outlined how this empowerment could be carried forward from education to workplace: through developing increased competence in self-directed learning, GPs were able to relinquish dependency and were thus empowered to meet changing and unplanned on-the-job immediate needs. These findings resonate with the wider self-directed learning literature, which identifies self-directed learning as a fundamental meta-competence in a changing world (Morris, 2023).

Critical considerations

Our findings, in general, seem to suggest that the connections between self-directed learning and inclusion are not unproblematic. However, one should not forget that inclusion is a fragmented and complex notion (e.g., Norwich, 2024) and that this fragmentation reflects in the way it is translated into educational practice. With this in mind, in this section we explore some of the ideas discussed so far through this critical lens.

Our review found that in the literature, self-directed learning and inclusion have been approached in two different but interrelated ways, with self-directed learning seen as a way of promoting inclusion 'through' education (i.e., inclusion being one of the outcomes or products of education); or as a way of promoting inclusion 'in' education (i.e., inclusion being a process and self-directed learning serving as the broader pedagogical framework).

Inclusion 'through' education is a much broader version of inclusion that can capture a wide range of issues and relates more generally to participation in societal and economic terms (Norwich, 2024). The second type of inclusion, 'in' education, is more linked to educational purposes and can be associated with broader debates about inclusive pedagogies (Florian & Spratt, 2013; Stentiford & Koutsouris, 2020). The distinction between the two versions is not always clear as in some cases both purposes coexist, for example, in Gratton's (2019) study that links pedagogy (collaborative work) to broader societal outcomes (social cohesion).

The significance of this finding lies in the way that inclusion tends to be discussed in public discourse and some of the academic literature as an inherently 'good', 'right' or 'ethical' approach that should not be questioned: 'inclusive education, especially in its radical versions … commits to one big value and idea that provides security and purpose' (Norwich & Koutsouris, 2017, p. 5). The consequence of this is that approaches to inclusion can be seen as too idealistic or detached from reality as tensions and dilemmas are rarely acknowledged (Norwich, 2024; Thomas & Loxley, 2022). Others argue, though, that inclusion has become too much of an academic debate and there is significantly less attention on translation into practice (e.g., Amor et al., 2019).

With regards to the findings of our review, and broader connections to the literature on inclusion, inclusion 'through' education is, arguably, difficult to be defined because of its broad scope and purposes. Drigas et al. (2023), for example, relate inclusion to the UN's Sustainable Development Goals, life opportunities and freedom of expression, but it is difficult to build a clear link between self-directed learning and inclusion understood so broadly, partly because inclusion outcomes seem longer term and reflect intention and possibility.

One aspect implied by some authors (for instance, Sahlberg, 2021), but less clearly discussed, is whether self-directed learning is understood as a personal skill or quality, or whether it is perceived as embedded in the wider context (social, cultural, policy) and linked to power relations.

The former perspective might disregard deep-seated structural inequalities that limit people's access and opportunities (Deem, 2009; Jin & Ball, 2020). Thus, drawing a link between self-directed learning and 'inclusion-related' outcomes (e.g., participation, representation in employment, life opportunities etc.) is not uncontroversial and achieving these outcomes is not dependent just on individual willingness. Inclusion is also often seen as being in tension with ideas about meritocracy: 'the inclusion agenda does not rest on natural and neutral concepts of effort and merit' (Runswick-Cole, 2011, p. 116); so, further challenging any links between individual qualities and skills, and inclusion outcomes. This point is particularly important when inclusion is linked to students with disabilities.

When it comes to inclusion 'in' education, the most widely discussed idea was empowering student voice and transferring control from the teacher to the student, albeit in different ways in each study (Edwards et al., 2021; Hughes & Morrison, 2020; Lee & Lee, 2009). Empowering students is often associated with inclusion and more particularly with a pedagogic approach called 'inclusive inquiry' (Ainscow, 2020; Messiou & Ainscow, 2020).

'Inclusive inquiry' is about engaging hard-to-reach students in the classroom who are seen as empowered by this process; it is thus associated with broader student-centred learning approaches in education. In this regard, Bremner (2021) conducted a review of definitions of student-centred learning found in the literature and proposed 'power sharing' as one of the most widely recognised characteristics, but also the least supported and/or practical aspect of student-centred learning, with many constraints to implementation (Sakata et al., 2022). Such limitations are rarely acknowledged in the inclusion literature (Koutsouris et al., 2023) and they were also not discussed in the included studies, other than acknowledging practical barriers, such as resource limitations (Edwards et al., 2021). The same applies to other tensions often discussed in relation to inclusive pedagogies such as the 'dilemma of difference' mentioned earlier on.

Overall, we argue that the findings of our literature review should be interpreted in the context of these tensions and challenges that are associated with inclusion.

REFLECTIONS, LIMITATIONS AND CONCLUSIONS

In this paper, our aim was to critically interrogate how self-directed learning and inclusion have been used together in the educational literature, with the aim of advancing conceptual and theoretical understanding in this respect.

Key insights gained through this process include: (1) a dual educational consideration that self-directed learning has been used as a framework to promote both inclusion 'in' education (i.e., linked with pedagogical methods and strategies) and 'through' education (i.e., linked with educational products and outcomes); and (2) engaging with self-directed learning has the potential to further inclusion and social justice aims in education. However, these findings can only be interpreted by taking into consideration the challenges and tensions associated with inclusion and inclusive practices. It is important to highlight that these challenges were rarely acknowledged in the included studies.

The relative size of the literature base retrieved through the present systematic review ($n = 19$) combining inclusion and self-directed learning was relatively small, and we can therefore conclude that although the above insights are pertinent, it is essential to consider that the majority of studies were of small-scale and cross-sectional in nature. Therefore, this

field remains an open door for further research; and applications in a variety of educational settings especially of longitudinal design, as well as theoretical and philosophical interrogations remain important directions for further research. The dual educational consideration that self-directed learning can be used as a framework to promote both inclusion 'in' and 'through' education remains an important area for further research—and a space where deeper reflections can be made on the relationship between self-directed learning and inclusion in education.

AUTHOR CONTRIBUTIONS

Thomas Howard Morris: Conceptualization; investigation; writing – original draft; methodology; writing – review and editing; formal analysis; project administration; validation. **George Koutsouris:** Conceptualization; investigation; writing – original draft; methodology; validation; writing – review and editing; formal analysis; project administration. **Lauren Stentiford:** Conceptualization; writing – original draft; methodology; validation; writing – review and editing; project administration; data curation; software. **Nicholas Bremner:** Conceptualization; data curation; project administration; methodology; validation; writing – review and editing.

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The authors have no conflicts of interest to declare.

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Data sharing is not applicable to this article as no new data were created or analysed in this study.

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APPENDIX 1

Data extraction coding tool, adapted from JBI (2024).

Review details
Review title: Self-directed learning and inclusion in education
Review objective/s: to examine the conceptual and theoretical links between self-directed learning and inclusion in the educational research literature
Inclusion/Exclusion criteria
Population: individuals connected with education, as broadly conceived
Concept/s: inclusion and self-directed learning
Context: educational settings, including preschool, primary school, high school, further education, higher education, life-long learning
Types of evidence source: peer-reviewed texts in English language
Evidence source details and characteristics
Author/s
Year of publication
Open access
Country
Methods
Participants (type and number)
Details/Results extracted from source of evidence
Who is inclusion for?
Approach to inclusion
Approach to self-directed learning

APPENDIX 2

PRISMA 2020 checklist.

Section and Topic	Item #	Checklist item	Location where item is reported
Title			
Title	1	Identify the report as a systematic review	p. 1
Abstract			
Abstract	2	See the PRISMA 2020 for Abstracts checklist	p. 1
Introduction			
Rationale	3	Describe the rationale for the review in the context of existing knowledge	p. 11
Objectives	4	Provide an explicit statement of the objective(s) or question(s) the review addresses	p. 11
Methods			
Eligibility criteria	5	Specify the inclusion and exclusion criteria for the review and how studies were grouped for the syntheses	p. 13 and Table 2

Section and Topic	Item #	Checklist item	Location where item is reported
Information sources	6	Specify all databases, registers, websites, organisations, reference lists and other sources searched or consulted to identify studies. Specify the date when each source was last searched or consulted	p. 13
Search strategy	7	Present the full search strategies for all databases, registers and websites, including any filters and limits used	pp. 12–13 and Table 1
Selection process	8	Specify the methods used to decide whether a study met the inclusion criteria of the review, including how many reviewers screened each record and each report retrieved, whether they worked independently, and if applicable, details of automation tools used in the process	p. 14
Data collection process	9	Specify the methods used to collect data from reports, including how many reviewers collected data from each report, whether they worked independently, any processes for obtaining or confirming data from study investigators, and if applicable, details of automation tools used in the process	pp. 15–16
Data items	10a	List and define all outcomes for which data were sought. Specify whether all results that were compatible with each outcome domain in each study were sought (e.g., for all measures, time points, analyses), and if not, the methods used to decide which results to collect	N/A
	10b	List and define all other variables for which data were sought (e.g., participant and intervention characteristics, funding sources). Describe any assumptions made about any missing or unclear information	N/A
Study risk of bias assessment	11	Specify the methods used to assess risk of bias in the included studies, including details of the tool(s) used, how many reviewers assessed each study and whether they worked independently, and if applicable, details of automation tools used in the process	p. 15
Effect measures	12	Specify for each outcome the effect measure(s) (e.g., risk ratio, mean difference) used in the synthesis or presentation of results	N/A

Section and Topic	Item #	Checklist item	Location where item is reported
Synthesis methods	13a	Describe the processes used to decide which studies were eligible for each synthesis (e.g., tabulating the study intervention characteristics and comparing against the planned groups for each synthesis (item #5))	N/A
	13b	Describe any methods required to prepare the data for presentation or synthesis, such as handling of missing summary statistics, or data conversions	N/A
	13c	Describe any methods used to tabulate or visually display results of individual studies and syntheses	pp. 15–16
	13d	Describe any methods used to synthesise results and provide a rationale for the choice(s). If meta-analysis was performed, describe the model(s), method(s) to identify the presence and extent of statistical heterogeneity, and software package(s) used	p. 16
	13e	Describe any methods used to explore possible causes of heterogeneity among study results (e.g., subgroup analysis, meta-regression)	N/A
	13f	Describe any sensitivity analyses conducted to assess robustness of the synthesised results	N/A
Reporting bias assessment	14	Describe any methods used to assess risk of bias due to missing results in a synthesis (arising from reporting biases)	p. 15
Certainty assessment	15	Describe any methods used to assess certainty (or confidence) in the body of evidence for an outcome	N/A
Results			
Study selection	16a	Describe the results of the search and selection process, from the number of records identified in the search to the number of studies included in the review, ideally using a flow diagram	p. 14 and Figure 1
	16b	Cite studies that might appear to meet the inclusion criteria, but which were excluded, and explain why they were excluded	Figure 1
Study characteristics	17	Cite each included study and present its characteristics	Table 3
Risk of bias in studies	18	Present assessments of risk of bias for each included study	p. 15

Section and Topic	Item #	Checklist item	Location where item is reported
Results of individual studies	19	For all outcomes, present, for each study: (a) summary statistics for each group (where appropriate) and (b) an effect estimate and its precision (e.g., confidence/credible interval), ideally using structured tables or plots	N/A
Results of syntheses	20a	For each synthesis, briefly summarise the characteristics and risk of bias among contributing studies	N/A
	20b	Present results of all statistical syntheses conducted. If meta-analysis was done, present for each the summary estimate and its precision (e.g., confidence/credible interval) and measures of statistical heterogeneity. If comparing groups, describe the direction of the effect	N/A
	20c	Present results of all investigations of possible causes of heterogeneity among study results	N/A
	20d	Present results of all sensitivity analyses conducted to assess the robustness of the synthesised results	N/A
Reporting biases	21	Present assessments of risk of bias due to missing results (arising from reporting biases) for each synthesis assessed	N/A
Certainty of evidence	22	Present assessments of certainty (or confidence) in the body of evidence for each outcome assessed	N/A
Discussion			
Discussion	23a	Provide a general interpretation of the results in the context of other evidence	pp. 22–29
	23b	Discuss any limitations of the evidence included in the review	pp. 29–30
	23c	Discuss any limitations of the review processes used	pp. 16–17, pp. 29–30
	23d	Discuss implications of the results for practice, policy and future research	pp. 29–30
Other information			
Registration and protocol	24a	Provide registration information for the review, including register name and registration number, or state that the review was not registered	N/A
	24b	Indicate where the review protocol can be accessed, or state that a protocol was not prepared	N/A
	24c	Describe and explain any amendments to information provided at registration or in the protocol	N/A

Section and Topic	Item #	Checklist item	Location where item is reported
Support	25	Describe sources of financial or non-financial support for the review, and the role of the funders or sponsors in the review	p. 30
Competing interests	26	Declare any competing interests of review authors	p. 30
Availability of data, code and other materials	27	Report which of the following are publicly available and where they can be found: template data collection forms; data extracted from included studies; data used for all analyses; analytic code; any other materials used in the review	See Tables, Figures, Appendices

From: Page et al. (2021).