Teacher Education as an Enabler or Constraint of Learner-Centred Pedagogy Implementation in Low- and Middle-Income Countries

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Abstract

This paper examines the characteristics of teacher education that helped and/or hindered the implementation of learner-centred pedagogy (LCP) in low- and middle-income countries. Methodologically, a systematic review was employed, with a final total of 59 relevant texts being identified. The review found that teacher education was influenced by: length of training, amount of ongoing support, degree of engagement and activeness, extent to which practical experiences were included, extent to which courses incorporated reflection, degree of contextual flexibility, and degree of teacher collaboration. These factors should be considered by those implementing teacher education provision in contexts where LCP is explicitly encouraged.

Keywords: learner-centred, student-centred, teacher education, teacher training, low-income country, middle-income country

Highlights

- Systematic review of learner-centred pedagogy in low- to middle-income countries, with focus on teacher education.

- Findings indicate that training needs to be “long enough” and incorporate ongoing support.

- To be effective, teacher training must be active, practical and model learner-centred practices.

- Training must provide opportunities for self-reflection and incorporate flexibility to adapt to local classroom contexts.

- Finally, teacher collaboration is also vitally important to enable implementation of learner-centred pedagogy.

Introduction

Learner-centred pedagogy (LCP) has been widely defined, and scholars and policymakers have struggled to reach a consensus as to what it actually means (Neumann, 2013; Thomas & Schweisfurth, 2021). For example, Schweisfurth (2013, p. 20) defined LCP as “a pedagogical approach which gives learners, and demand from them, a relatively high level of active control over the content and process of learning”, whereas Jones (2017, p. 12) defined a learner-centred classroom as “a place where we consider the needs of the students, as a group and as individuals, and encourage them to participate in the learning process all the time”. In an attempt to achieve a higher level of conceptual clarity, Bremner (2021) conducted a meta-analysis of the definitions found in 326 journal articles, and concluded that LCP may involve any one or more the following: 1) more active learning activities; 2) a focus on relevant 21st century skills; 3) adapting to learner needs; 4) increased learner autonomy; 5), a reduction of traditional power distances between teachers and learners; and 6) the incorporation of formative as well as summative assessment.

Despite the broad and somewhat fuzzy range of definitions attached to LCP, the pedagogy has been embraced as a gold standard or best practice in educational discourse worldwide, particularly in the context of educational development in low- and middle-income countries. From the onset of the “Education for All” initiative agreed upon by global agencies in 1990, international organisations – such as the United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Children’s Fund (UNICEF) and the World Bank – have recurrently promoted the ethos of LCP (UNESCO, 2000; UNICEF, 2009; World Bank, 2000). This trend has carried on through to the eras of Millennium Development Goals (UNDP, 2014) and Sustainable Development Goals (UNESCO, 2017), and the most recent report from the commission on the Futures of Education (UNESCO, 2021) continues to state that "future schools need to be student-centred" (p. 100).

Following international recommendations for LCP implementation across low- and middle-income countries, national governments in these regions have advocated LCP in their own countries. Countries such as India (Brinkmann, 2019), South Africa (Chisholm & Leyendecker, 2008) and Ghana (Akyeampong, 2017), among many others, have introduced educational policies with LCP tenets. Such a global upheaval of LCP has led to numerous research projects examining its implementation, processes and outcomes at schools in low- and middle-income countries. Brinkmann (2019), for example, examined the associations between teachers' beliefs and their classroom practices in India, whereas Vavrus (2009) conducted an ethnographic study of a teacher education institution in Tanzania and explored student teachers' perceptions of, and their take-up of, LCP. Such individual case studies, albeit useful, are limited to the specific times and contexts in which the studies were carried out. By integrating the findings of several individual studies, a systematic review of literature can provide a more comprehensive and robust picture on a topic spanning across different times, geographical and cultural settings (Gough, Oliver, & Thomas, 2012).

Currently, relatively few reviews of literature on LCP implementation in low- and middle-income countries exist. Schweisfurth (2011) reviewed 72 LCP-related articles published in the *International Journal of Educational Development*, while Guthrie (2021a, 2021b) compiled 1112 publications written on the topic including "grey literature". Although these previous reviews offered a broad view of how and why LCP has been appropriated and with what outcomes, both reviews seem to be conducted *opportunistically* (Davies, 2000), without a clear explanation of explicit or transparent review processes. If the process of identifying, selecting and evaluating studies is not reported unequivocally, readers cannot assess the appropriateness, rigour or consistency of the review decisions, thus making it more difficult to trust the review findings (Gough, Oliver, & Thomas, 2012). In contrast, Cornelius-White (2007) conducted a meta-analysis of LCP across several middle- and high-income countries, including Brazil, the Philippines, Canada, Germany, the UK and the US. With clear research questions for the review, a comprehensive search strategy with explicit inclusion criteria and procedures in place to reduce bias, the author examined the associations between LCP-related independent variables and cognitive and non-cognitive outcomes of students. Overall, the meta-analysis concluded that there were positive associations between LCP and student outcomes, albeit with wide variability across individual settings.

Given the ever-growing endorsement of LCP for educational development in low- and middle-income countries, a systematic review on the topic in these regions is necessary in order to inform policy decisions in resource-limited educational settings. We thus carried out a systematic review of research on LCP implementation in low- to middle-income countries (Sakata et al., 2022). Through the review, we aimed to gain a more comprehensive understanding of 1) the extent to which LCP was evident in classrooms after implementation; 2) enablers of and/or constraints to successful LCP implementation; and 3) the outcomes of LCP implementation. This particular article reports on the findings of the second aim only, with a specific focus on those factors related to *teacher education* which were reported to have helped, or hindered, LCP implementation.

Regarding the second main aim (the enablers/constraints of LCP implementation), we identified a number of enabling and constraining factors that were reported to have influenced the degree of LCP implementation. Among these factors, those related to teacher education particularly stood out in terms both of the number of texts referring to teacher education and the depth of discussion held in these texts. This might sound obvious, given that (student) teachers in low- and middle-income countries, who might be unfamiliar with learner-centred ways of teaching, would need to be trained in LCP in the first place in order to implement it in the classroom. However, despite the significance of teacher education in LCP implementation, to our knowledge no systematic reviews on teacher education in the context of LCP implementation have been conducted to date. Schweisfurth (2011) does dedicate one paragraph of her review to teacher training during LCP reforms (p. 428), citing a total of 12 texts and highlighting a number of key issues, among these an overall lack of training, insufficient modelling of learner-centred practices, overly theoretical training, and a lack of qualified trainers. However, as mentioned earlier, relatively little explicit information was provided regarding inclusion/exclusion criteria; meaning this review may be best defined as "narrative" review as opposed to a "systematic" one (Davies, 2000). In this paper, we draw upon a larger number of texts (59) than Schweisfurth refers to in her brief section on teacher training. We specifically, and systematically, focus on the characteristics of teacher education that may have impacted, in a positive and/or negative way, on LCP implementation. In doing so, we aim to provide a "big picture" of the role of teacher education in LCP implementation.

Method

As indicated in the Introduction, this study was part of a larger systematic review on the implementation of LCP in low- to middle-income countries, conducted by a team of three international researchers (Sakata et al., 2022). The review sought to examine 1) the extent to which LCP was evident in classrooms; 2) enablers and constraints to successful LCP implementation; and 3) the outcomes of LCP implementation. This paper reports on aim 2) (enablers and constraints to LCP implementation), but specifically focuses on how *teacher education* may have impacted upon the degree of LCP implementation. The research questions addressed in this paper are as follows:

> RQ1. What background factors influence teacher education in the context of LCP implementation?
>
> RQ2. What characteristics of teacher education were reported to have enabled and/or constrained the degree of LCP implementation?

Fig. 1 summarises the process of retrieval, screening, and analysis of texts (see Sakata et al., 2022 for a more comprehensive description of the review process). In Stage 1, we utilised the systematic review software EPPI-Reviewer to import a total of 1890 texts from 9 educational databases: Applied Social Science Index & Abstracts (ASSIA), British Education Index (EBSCO), Education Abstracts (EBSCO), Education Database (ProQuest), ERIC (ProQuest), International Bibliography of Social Sciences, ProQuest Central, Social Science Citation Index (Web of Science) and Social Science Database (ProQuest).

There were six main inclusion/exclusion criteria at this point:

1. We restricted the review to peer-reviewed *journal articles*, published *between January 2001 and December 2020.* We considered that a period of 20 years would provide a sufficiently large range of texts whilst maintaining the practical feasibility of the study.
2. Texts needed to be *downloadable*, not necessarily for free, but access needed to be possible through the researchers' UK-based institutional access. This was for practical reasons, as we could not reasonably be expected to locate articles that were not accessible online.
3. Texts needed to be *in English.* Again, this was for practical reasons, given that it was the language that the team of three researchers could understand.
4. Texts needed to focus on *low- to middle-income countries* (this was based on the World Bank list as of January 2021). As stated in the Introduction, the focus of the review was on low- and middle-income countries due to the term being so prominent in policy discourse across these countries (Schweisfurth, 2013). Extending the review to high-income countries may be an interesting extension to the present study.

5. Texts needed to focus on *primary and/or secondary education*. This focus stemmed from the fact that most policy discourse around LCP in low- and middle-income countries has been presented in the context of Basic Education (UNDP, 2014; UNESCO, 2000; UNICEF, 2009). Extending to higher, further and pre-school education may also be a useful extension to the study.
6. Texts needed to have the terms “learner-centred”, “student-centred”, “child-centred” (or American variations) in the title and/or abstract. We selected these terms due to the prominence of these terms in policy discourse in low- and middle-income countries, as outlined in the Introduction. We did consider extending the search terms to related concepts such as “active learning”, “constructivism”, “formative assessment” and so on. However, we felt that it would be difficult to create an objective system to decide upon which additional terms to include and which to exclude. Again, increasing the variety of related sub-concepts of LCP in the search criteria may be a useful extension to the present review.

There were 863 texts which fulfilled our criteria by the end of Stage 1 (excluding 1027 duplicates, which were eliminated using EPPI’s duplicate removal functionality).

In Stage 2 (see Fig. 1), we read the title and abstract of each of these 863 texts, both to check that the initial criteria had been followed, but also to include or exclude based on two additional criteria:

7. Texts needed to be *empirical* (i.e., they needed to have collected and analysed their own quantitative or qualitative data). It was important to include these empirical texts and not simply theoretical papers, as we were aiming to bring together real evidence of LCP implementation.

8. Texts needed to be clearly *relevant to the topic* of LCP implementation (for example, there were some texts that used the term “learner-centred” in the context of computer application design, which were clearly not relevant to our research focus).

It is important to mention that the decisions to include or exclude texts were conducted by at least two reviewers in order to enhance inter-rater reliability. This consisted of each researcher reviewing the text independently and deciding whether or not to include or exclude texts based on their interpretation of the criteria stated above. All responses were saved into EPPI-Reviewer, and were subsequently consulted through its “Reconciliation” functionality, which presented each reviewer’s decisions side-by-side. Where there were disagreements, all three researchers discussed via videocall until they reached a mutually agreed decision. There were 461 texts which fulfilled our criteria by the end of Stage 2.

In Stage 3 (see Fig. 1), we again used EPPI-Reviewer to enable us to carry out a third screening process: including or excluding texts based on methodological rigour (as well as for any previous reason that may have been missed in Stages 1 and 2). At this stage, we read the main body of the texts in order to decide whether the articles were sufficiently methodologically rigorous to merit inclusion in the review. To structure our decision-making, we adopted the “quality appraisal criteria” used by Oketch et al. (2014, p. 85), which encompassed the following four criteria: *Focus*, *Transparency*, *Appropriateness*, and *Validity and reliability of conclusions*. Firstly, *Focus* related to whether the study had explicitly focused on the implementation of an LCP-related reform. This was very similar to criterion #8 above (*relevance to the topic*); however, we found that by reading texts in more detail there were many other texts that, upon more detailed consideration, did not specifically focus on the implementation of an LCP-related change. Secondly, *Transparency* related to how clearly the aims, methods and analytical methods were explained and justified in the article. Thirdly, *Appropriateness* related to the extent to which the research design, participants, sampling and analytical techniques were consistent and appropriate with the aims of the study. Finally, *Validity and reliability of conclusions* related to the extent to which conclusions of the studies were supported with evidence, whether other factors were taken into account, whether the authors' claims on generalisability and/or transferability were appropriate, as well as the overall coherence of argument running through the study.

To a certain extent, decisions made on methodological rigour were subjective and thus prone to inconsistency. However, we aimed to mitigate individual subjectivity by ensuring that each of the 461 texts were screened by at least two reviewers, again drawing upon EPPI-Reviewer's "Reconciliation" functionality to highlight and resolve disagreements. In certain cases where there were disagreements between the first two reviewers, a third reviewer was called upon to make the final decision. Although the process of inclusion and exclusion was not an exact science, we feel we took reasonable steps to increase the reliability of the process. There were 94 texts that continued to meet our criteria by the end of Stage 3.

In Stage 4 (see Fig. 1), we adopted a somewhat different approach to the previous stages, as this review and analysis process did not take place independently but rather simultaneously over videocall. Stage 4 involved reading each of the included texts in detail. There were two main parts to this stage. The first key part was to categorise the texts based on key variables such as region, economic status, educational setting, participants and methods. This enabled us to provide a general overview of the key characteristics of the texts that formed part of the review, thus "mapping the literature" (see Table 1).

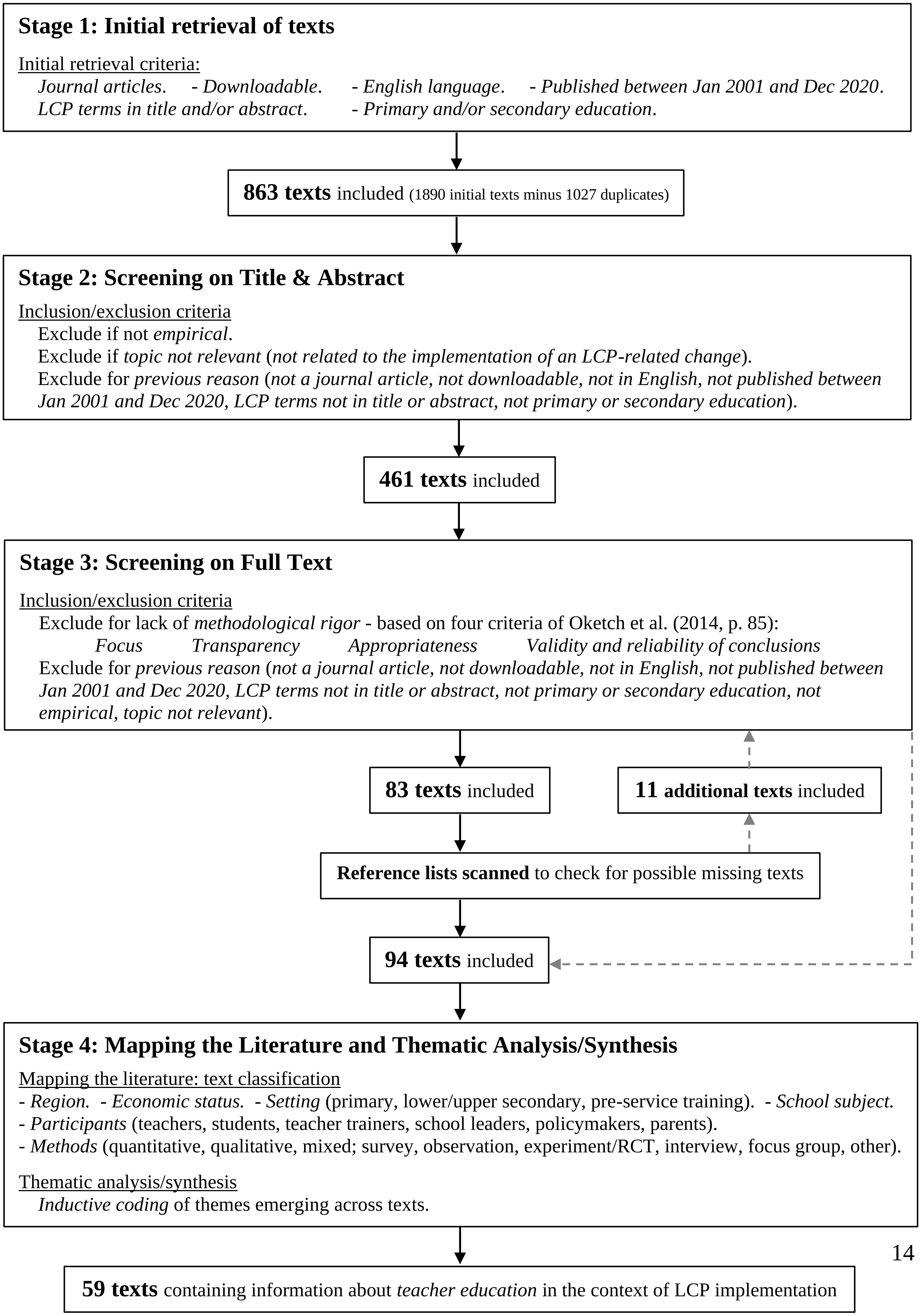
Table 1 summarises some of the key characteristics of the texts that are analysed in this paper. The table is included to provide the reader with a general overview of the types of research that have been conducted, but due to the relatively small number of texts, it is not appropriate to calculate cross-tabular analyses based on these variables.

Table 1. Summary of key characteristics found within the 59 texts on teacher education

Region	***Sub-Saharan Africa***	***East Asia & Pacific***	***Europe & Central Asia***	***South Asia***	***Middle East & N Africa***	***Latin America & Caribbean***	
No. of texts	30	15	5	4	3	2	
Country status	***LIC***		***LMIC***		***UMIC***		
No. of texts	9		26		24		
Educational setting	***Primary***		***Lower secondary***		***Upper secondary***		
No. of texts	30		34		27		
Participants	***Teachers***	***Students***	***School leaders***	***Teacher trainers***	***Policymakers***	***Parents***	
No. of texts	57	13	13	10	7	2	
Methodology	***Quantitative***		***Qualitative***		***Mixed methods***		
No. of texts	1		32		26		
Specific methods	***Interviews***	***Qualitative observation***	***Other qualitative methods***	***Quantitative surveys***	***Quantitative observations***	***Focus groups***	***Qualitative surveys***
No. of texts	49	35	29	19	14	13	9

The second key part of Stage 4 was to draw out the key themes emerging over the remaining texts. Our approach to analysis can be categorised as an inductive “thematic analysis”, which forms part of the broader approach of “qualitative synthesis” (Bearman & Dawson, 2013; cf. “thematic synthesis” – Thomas & Harden, 2008). This consisted of us reading the texts in detail, and using QSR NVivo to create categories as themes emerged. After each of the texts had been coded individually, we read through what we had coded into each theme several times to check that we were satisfied with what we had included. This process involved several iterations and reformulations, as we sought to organise the categories and sub-categories into a logical structure. In the final version of the NVivo analysis file, there were a total of 182 themes (including sub-themes). For the purposes of this paper, we focus specifically on those themes relating to *teacher education* (as an enabler and/or constraint of LCP implementation). The total number of texts in the review that contained at least one theme related to teacher education was 59.

Fig. 1. Flow diagram of the systematic review process (adapted from Sakata et al., 2022, p. 7)



Stage 1: Initial retrieval of texts

Initial retrieval criteria:
Journal articles. - *Downloadable*. - *English language*. - *Published between Jan 2001 and Dec 2020*.
LCP terms in title and/or abstract. - *Primary and/or secondary education*.

863 texts included (1890 initial texts minus 1027 duplicates)

Stage 2: Screening on Title & Abstract

Inclusion/exclusion criteria
Exclude if not *empirical*.
Exclude if *topic not relevant* (*not related to the implementation of an LCP-related change*).
Exclude for *previous reason* (*not a journal article, not downloadable, not in English, not published between Jan 2001 and Dec 2020, LCP terms not in title or abstract, not primary or secondary education*).

461 texts included

Stage 3: Screening on Full Text

Inclusion/exclusion criteria
Exclude for lack of *methodological rigor* - based on four criteria of Oketch et al. (2014, p. 85):
Focus *Transparency* *Appropriateness* *Validity and reliability of conclusions*
Exclude for *previous reason* (*not a journal article, not downloadable, not in English, not published between Jan 2001 and Dec 2020, LCP terms not in title or abstract, not primary or secondary education, not empirical, topic not relevant*).

83 texts included

11 additional texts included

Reference lists scanned to check for possible missing texts

94 texts included

Stage 4: Mapping the Literature and Thematic Analysis/Synthesis

Mapping the literature: text classification
- *Region*. - *Economic status*. - *Setting* (primary, lower/upper secondary, pre-service training). - *School subject.*
- *Participants* (teachers, students, teacher trainers, school leaders, policymakers, parents).
- *Methods* (quantitative, qualitative, mixed; survey, observation, experiment/RCT, interview, focus group, other).

Thematic analysis/synthesis
Inductive coding of themes emerging across texts.

59 texts containing information about *teacher education* in the context of LCP implementation

Results

In this section, we present the synthesised findings of the review. As described in the Methodology, we carried out an inductive thematic analysis of the themes emerging across the 59 texts. We summarise these themes in Tables 2 and 3, which correspond to RQ1 and RQ2 respectively. For each theme, we mention the total number of times each theme emerged over the 59 texts, thus providing the reader with an indication of the themes that were most common review as a whole. In addition to indicating the number of times each theme was mentioned, we supplement each point by a selection of illustrative examples. Although space requirements limit the detail we are able to dedicate to these examples, they do provide an additional layer of contextual richness and, at times, explanatory value, which may sometimes be lost when bringing together the findings of numerous studies.

RQ1. What background factors influence teacher education in the context of LCP implementation?

Before focusing specifically on the positive and negative characteristics of teacher education in the context of LCP implementation, this section outlines some of the background factors influencing teacher training courses. These factors are important to include in this review, as they directly impact, or lead into, teacher education. Table 2 summarises these factors, as well as the number of texts that cited them. There are, of course, many other factors influencing LCP implementation, such as material constraints, student resistance, and inconsistency with national examinations, which we do not examine in this article (see Sakata et al., 2022 for a more comprehensive overview of all constraints and enablers to LCP implementation).

Table 2. Summary of background factors influencing teacher education in the context of LCP implementation

Factor	**Description**	**No. of texts citing this factor (/59)**
Teacher shortages as a constraint	Articles citing an overall lack of qualified teachers as a constraint to LCP implementation.	8
Lack of teaching experience as a constraint	Articles citing examples of teachers lacking sufficient experience to implement LCP effectively.	23
Poor working conditions and limited incentives to change as constraints	Articles citing challenging working conditions for teachers and/or few reasons for teachers to consider changing their practices towards LCP.	9
Teacher workload as a constraint	Articles specifically reporting that teachers were overloaded with work, thus limiting the possibility of them being able to implement LCP effectively.	16
Teachers' beliefs as a constraint	Articles citing examples of teachers not believing in LCP, and this, therefore, becoming a constraint to LCP implementation.	47
Unclear conception and communication of the curriculum as constraints	Articles citing examples in which teachers were unclear and/or confused about LCP, sometimes due to the changes not being communicated effectively, thus limiting the possibilities of effective LCP implementation.	24

Teacher Shortages as a Constraint

Firstly, 8 out of the 59 texts reported that LCP implementation in primary and secondary schools was hindered by an overall lack of qualified teachers (e.g., Joong et al., 2019 in the Philippines; Zenda, 2017 in South Africa). Linked to this was a high level of teacher absenteeism. In Tanzania, Barrett (2007) observed several instances of teachers having to leave students to complete activities by themselves in response to staff shortages, especially in remote schools. Moreover, in Ethiopia, Frost and Little (2014) found statistical links between teacher absenteeism and a lack of engagement in student-centred activities.

Lack of Teaching Experience as a Constraint

In addition to a general lack of teachers, 23 texts cited examples of teachers lacking sufficient experience to implement LCP-related reforms. In Tanzania, Voogt et al. (2009) found that although teachers held positive dispositions to LCP, they lacked knowledge and experience to implement many elements of it. In Namibia, O'Sullivan (2001, 2004) reported that teachers "had mastered few basic teaching skills" (2001, p. 105), emphasising that there was "a huge underestimation of what is involved in learner-centred education. […] It requires specific assumptions and great skill, both of which were absent amongst the teachers in the case study schools" (2004, p. 594).

These findings were echoed by Brodie et al. (2002) in South Africa, who argued that teachers struggling to implement LCP were also struggling with other aspects of their teaching (see also Chiphiko, 2014 in Malawi). Indeed, it seemed especially the case that inexperienced teachers found it more difficult to implement LCP. For example, in Swaziland, Stronkhorst and van den Akker (2006) compared more experienced and less experienced teachers, and found that inexperienced teachers were therefore less likely to implement LCP, given that they initially tended to focus on "survival" skills such as classroom management (see also Blignaut & Au, 2014).

Poor Working Conditions and Limited Incentives to Change as Constraints

Linked to the previous, 9 texts cited poor working conditions as factors influencing teacher shortages, which, in many cases, led to a lack of incentive to engage with LCP reforms. In Uganda, Altinyelken (2010, p. 166) stated:

> […] the majority of teachers noted that teacher morale was alarmingly low. A number of reasons were discussed in this respect including low teacher salaries, lack of incentives, low social status of the teaching profession, and inadequate working conditions. […] Financial problems seemed to occupy their minds constantly, and distracted their attention and concentration in the classroom as well.

In India, Brinkmann (2015, p. 353) reported that 47% of teachers indicated that they would leave the profession if a higher-paying job became available, and 49% responded that "it's no use trying to be a really good teacher since they don't get any reward or appreciation for doing a good job". A lack of motivation was also cited by 75% of respondents in Sifuna and Kaime's (2007) study with Kenyan teachers.

Teachers Workload as a Constraint

Linked to the previous points on poor working conditions, 16 studies highlighted that many teachers were already overloaded with work, and thus found the increased demands of an LCP-related curriculum to be overwhelming. For example, in Cambodia, Song (2015) reported that many teachers had second jobs or caring responsibilities, which prevented them from having time to prepare materials. In Palestine, Al-Ramahi and Davies (2002) reported teachers' exhaustion at having to teach 27 sessions per week. In Fiji, Crossley et al. (2017, p. 833) discussed heavy workloads, a lack of respect attached to the teaching profession, stress, frustration, and "reform lethargy" when faced by constant curriculum changes. In Tanzania, Barrett (2007, p. 284) reported teachers' frustration at "knowing what their pupils required for them but not having the time or energy to prepare well before classes and to meet learning needs once in class".

Teachers' Beliefs as a Constraint

The transition from traditional teacher-centred approaches to more learner-centred approaches is considered a "complex" change, in the sense that it requires not only changes to teaching practices, but also shifts in teachers' fundamental beliefs about teaching and learning (Fullan, 2015). This is, of course, more difficult when the current beliefs of teachers (and, to a great extent, the beliefs of people in the wider society) are far removed from the beliefs implied by the changes. Indeed, a large proportion of texts (47 out of 59) made reference to teachers' beliefs as a potential constraint to LCP implementation. In many cases, gaps between teachers' beliefs and the expectations of LCP-related reforms led to teacher resistance (e.g., Wang & Ma, 2009 in China). For example, in Turkey, Altinyelken (2011, 2015) reported that many teachers refused to use different textbooks and continued to use lecture-based methods, often with the rationale that such methods would be more conducive to students' academic success.

Largely conservative beliefs about roles of teachers and learners provided the backdrop for many teacher training courses. A total of 16 texts cited that most teachers believed in hierarchical relationships between teachers and students (e.g., Barrett, 2007, in Tanzania). In Tanzania, Msonde and Msonde (2019) provided excerpts from teachers who expressed concerns that relinquishing power to the students may lead to a lack of respect towards themselves as teachers. In Cambodia, Ogisu (2018, p. 775) suggested that hierarchical relationships were particularly prevalent given the historical context of civil war. In India, Brinkmann (2019, p. 8) stated that many Indian teachers:

> […] believe that teachers must control children through fear and discipline, rather than favouring democratic and friendly teacher-student relationships […] the belief in one's purpose as reinforcing rather than challenging social hierarchies, and knowledge as static and transmitted, contributes to an acceptance of the status quo and favouring of tradition over change.

Traditional roles were also evident between teacher trainers and teachers. For example, in Ghana, Akyeampong (2017) argued that hierarchical relationships limited teachers' ability to critically question their superiors, an issue also raised by Vavrus and Bartlett (2012) in Tanzania.

Linked to hierarchical relationships was the common belief that knowledge was seen as "fixed", as cited in 15 out of the 59 texts (e.g., Shah & Quinn, 2016 in East Timor). In Turkey, Soysal and Radmard (2017a; 2017b) explored teachers' metaphors for their teaching roles and found that the majority of these related to teacher-centred roles such as transmitters of knowledge. Moreover, in Tanzania, Vavrus and Bartlett (2012, p. 648)'s study revealed:

> the persistence of a sense of knowledge as predetermined to be discovered, with the teacher's role being to facilitate the discovery of a body of authoritative knowledge. As one teacher said, "The point here is, as a teacher, I am a facilitator, I am a leader making sure that I'm leading them in the direct way, to make sure that they get a knowledge which is planned for them."

In light of the previous examples, the idea that teachers' beliefs were often quite different from the hoped-for outcomes of LCP-related changes, clearly posed a challenging starting point for teacher education courses.

Unclear Conception and Communication of the Curriculum as Constraints

A final important background factor to teacher education is the conception and communication of the pedagogical change itself. As highlighted in the Introduction, LCP is a wide-ranging concept with many different interpretations, plausibly leading to a lack of common understanding of what LCP entails among stakeholders at different policy levels. Indeed, in 24 out of the 59 articles, we identified instances of confusion and/or inconsistency regarding what the change in each context actually entailed. For example, in Thailand, Tongpoon-Patanasorn

(2011, p. 10) argued that many teachers misunderstood the concept of LCP, with the author claiming that only 28% of teachers had a “good understanding of learner-centredeness”. In China, Lai (2010, p. 621) interviewed senior teachers, less experienced teachers and a teaching research officer, and found that “they all had different interpretations of the new ideas in the curriculum reform”.

In Tanzania, Msonde and Msonde (2018) suggested that policy messages around LCP, albeit encouraging from an idealistic perspective, were too vague to be operationalised in practice (see also Shah & Quinn, 2016 in East Timor). In Turkey, Altinyelken (2011, p. 150) argued that LCP was a particularly difficult concept for teachers to get their heads around, and that “the lack of a sound and thorough basis on the pedagogical approach seemed to have resulted in wide variations in interpretation and practice”. In several cases, LCP reforms appear to have been interpreted to represent only superficial aspects of LCP such as “group work” (e.g. Rogan & Aldous, 2005 in South Africa). Shah and Quinn (2016, p. 10), when critiquing the National Quality School Standards Framework in East Timor, argued that the document provided “confusing and formalistic messages about what child-centred pedagogy entails”.

A lack of effective communication of the desired changes is linked to the points made above (e.g. Shaobing & Adamson, 2016 in China). For example, in Palestine, Al-Ramahi and Davies (2002, p. 72) reported that “[t]op-down policy-making and flow of communication caused major problems of lack of communication”, suggesting that different departments “worked to produce decisions that clashed with or opposed those issued by others”. Finally, in China, Shaobing and Adamson (2016, p.100) reported that “the communication of the ideas underpinning the curriculum was ineffectual. Teachers were not required to read the curricular documents, nor were they provided with adequate training or support in understanding the need for the reform and the complexities of the initiatives." The previous quotation highlights the overlap between unclear messages in policy documents and how teacher training attempted to communicate these messages to teachers. We therefore now proceed to examine the characteristics of effective and ineffective teacher education.

RQ2. What characteristics of teacher education were reported to have enabled and/or constrained the degree of LCP implementation?

Having provided some of the most relevant background issues influencing teacher education, we now present the characteristics of training courses that were more effective (enablers) and less effective (constraints) in the context of LCP implementation. Table 3 summarises these enablers and constraints, including the number of texts overall that cited each of them. Out of the 59 texts, 38 articles mentioned at least one characteristic that was seen to constrain LCP implementation, whereas 28 mentioned at least one characteristic of teacher education that was seen to enable LCP implementation. In the discussion that follows, we present each of these characteristics, including a selection of illustrative examples.

Table 3. Summary of teacher education-related constraints and enablers to LCP implementation

Factor	Description	No. of texts citing this factor (/59)
SUMMARY		
All teacher education-related constraints		*38*
All teacher education-related enablers		*28*
Quantity of training		
Lack of training as a constraint	A general absence of teacher education cited as a constraint to LCP implementation.	13
Resources in training		
Lack of resources in training as a constraint	Teacher education that lacked resources (e.g., infrastructure or supporting materials).	4
Training length		
Training length as a constraint	Teacher education considered to be too short to have a meaningful effect.	11
Training length as an enabler	Teacher education considered to be long enough to have a meaningful effect.	7
Ongoing support		
Lack of ongoing support as a constraint	Teacher education delivered as one-off sessions without any follow-up or ongoing support.	9
Ongoing support as an enabler	Teacher education incorporating follow-up and/or ongoing support after the initial training period.	6
Degree of engagement and activeness		
Unengaging and passive training as a constraint	Teacher education delivered in an unengaging and/or passive way; the course itself not delivered in a way consistent with principles of LCP.	6
Engaging and active training as an enabler	Teacher education delivered in an engaging and/or active way; the course itself delivered in a way consistent with principles of LCP.	12
Teacher trainers		
Teacher trainers as constraints	Teacher education in which teacher trainers were seen to be constraints to effective LCP implementation.	9
Teacher trainers as enablers	Teacher education in which teacher trainers were praised as being particularly effective.	2
Practical experiences		
Lack of practical experiences as a constraint	Teacher education lacking any practical experiences (teaching practices, peer observations, etc.)	13
Practical experiences as enablers	Teacher education incorporating practical experiences (teaching practices, peer observations, etc.)	10
Reflection		
Reflection as enablers	Teacher education incorporating individual and/or group reflection.	8
Room for adaptation		
Lack of room for adaptation as a constraint	Teacher education that was overly prescriptive, with few/no opportunities for teachers to exert autonomy and/or reflect about how they might adapt changes in light of contextual differences.	13

Room for adaptation as an enabler	Teacher education allowing opportunities for teachers to exert autonomy and/or adapt the change in light of contextual differences.	14
Teacher collaboration		
Lack of teacher collaboration as a constraint	Teacher education in which there was a lack of opportunities for teacher networking, collaboration and/or the creation of Communities of Practice.	7
Teacher collaboration as an enabler	Teacher education incorporating opportunities for teacher networking, collaboration and/or the creation of Communities of Practice.	10
Training in a foreign country		
Training in a foreign country as an enabler	Teacher education in which teachers travel to different countries for teacher training.	1

Lack of Training

Lack of Training as a Constraint

In 13 out of the 59 texts, authors mentioned that a general lack of teacher training, both pre- and in-service, was a factor hindering LCP implementation (e.g., Coskun & Alkan, 2010 in Turkey; Kerkhoff, et al., 2020 in Kenya; Koosimile, 2005 in Botswana). In Benin, Gado (2005) reported that 88% of teacher participants had indicated that training was significantly lacking. In Vietnam, Saito et al. (2008, p. 100) linked a lack of success of LCP implementation to the fact that only very few staff had been invited to training. In some cases, a lack of training was explicitly linked to a general lack of funding (e.g., Shaobing and Adamson, 2014 in China).

Resources in Training

Lack of Resources in Training as a Constraint

Where training was available, 4 texts specifically mentioned a lack of resources available within teacher education. For example, in Ethiopia, Barnes et al. (2018, p. 8) reported:

> The classes observed were all large (mean = 49, with some as large as 88), with the students completely filling the classrooms. This made it difficult for the teacher educators to reorganize students into small groups for activities. There was mostly only one printed module for two to five students, which added to the difficulties of small group work, as students could not all see the text at the same time. This led to one or two students doing the work while others sat passively.

Similarly, in Vietnam, Le (2018) and Saito et al. (2008) highlighted a lack of supplementary resources for teachers to read in the aftermath of training sessions.

Training Length

Training Length as a Constraint

Linked to a lack of resources was the length of training courses. 11 texts indicated that training courses were too short for any meaningful changes to occur. For example, in Palestine, teachers in Shraim and Khlaif (2010, p. 167) reported that they had not been sufficiently prepared for the new curriculum and that “the one-shot training given to them was inadequate”. In Uganda, Altinyelken (2010, p. 164) stated that most teachers had found the initial training for the Thematic Curriculum (TC) to be “too short, too hectic and hurried”. Describing the same reform, Akello and Timmerman (2018, p. 327) presented the perspective of a regional school inspector, who stated:

> The duration for training was not enough. I remember participating in the training. The TC was first introduced in grade one and it took two weeks. To me that was a bit inadequate. However the training of teachers of grades two and three was done in a rush. […] With that kind of training you cannot expect effective implementation.

In China, Lai (2010, p. 621) suggested that a week-long training course on LCP had not been enough for teachers to understand what was expected of them, indicating that “[t]eachers often reflected that the brief training programme did not help them fully understand how to implement the new curriculum.”

A lack of time also impacted upon the way teacher educators were forced to deliver courses. In Ethiopia, Barnes et al. (2018, p. 7) reported that teacher educators expressed that they could not cover the content of the course in a meaningful way, having to deliver it quickly and in a rather teacher-centred way:

> Almost all CTE teacher educators said that the MT201 curriculum contained too much material for a 3-credit hour course. As one teacher educator said, “Our class progresses in a very slow

> pace as students struggle to catch most of the new ideas and concepts. So, I am forced to change my lesson plan as students required much more time than what I planned." The time constraints often led teacher educators to revert to a more teacher educator-centered approach.

Training Length as an Enabler

In contrast to courses that were considered too short, 7 texts attributed positive LCP implementation to longer teacher education experiences. When evaluating the implementation of a flipped learning course in China, Sun and Gao (2019, p. 15) suggested that "teachers were given sufficient time and opportunities to develop their own understanding of the integration of ICT in the curriculum." In Lesotho, Khoboli and O'Toole (2013) described how teachers began to transition towards more LCP practices over a longer two-year period, whilst in India, Niesz and Krishnamurthy (2013, p. 217) reported a similar pattern of teachers becoming more learner-centred over time:

> The length of time it took teachers to feel confident with ABL [Activity-Based Learning] ranged from a couple of months to a full year, but almost all of the teachers described an initial period of difficulty and the eventual achievement of understanding ABL through practice over time.

The idea of increased time is linked to that of "ongoing" support, a theme discussed in the following section.

Ongoing Support

Lack of Ongoing Support as a Constraint

A total of 9 texts cited a lack of follow-up and/or ongoing support as a factor hindering LCP implementation. In Uganda, Akello and Timmerman (2018, p. 327) found that teachers, "in defence of their lack of skills in implementing the language policy, blamed the trainers for the lack of follow-up and support supervision after the training”. In Pakistan, Mohammed and Harlech-Jones (2008, p. 47) reported that teachers were frustrated that they had received no support from the university that had encouraged them to implement LCP:

> Feeling isolated in their endeavours to bring about reforms, the teachers looked for follow-up support from the university. Unfortunately, this was also not forthcoming. […] Consequently, it was easier to fall back into old practices, which were sanctioned by many years of experience.

Similar findings were reported by Mtika and Gates (2010, p. 401) when writing about student teachers in Malawi. The authors argued that “[s]ince supervisors do not have a continuous presence in the schools to act as reference points, student teachers do not have the regular reference for their college oriented [i.e. more learner-centred] practice”. Such a feeling of isolation was also reflected in other studies. For example, in Palestine, Al-Ramahi and Davies (2002, p. 67) reported that teachers complained about the “lack of incentive, monitoring and support from educational supervisors who came just once a term”, whilst in Swaziland, Stronkhorst and van den Akker (2006) reported that teachers received no support at all after the initial intervention.

Ongoing Support as an Enabler

In contrast, 6 studies cited ongoing support as an enabler of LCP implementation. In Namibia, O’Sullivan (2001, p. 111) found that teachers only began to come to terms with the change until after the third round of ongoing training, concluding that “a series of workshops and follow-up support over a long period is more effective than one-off workshops with no follow-up”. In Lesotho, Khoboli and O’Toole (2013, p. 89) argued that the “on-going professional development support that these teachers received helped them to deepen their understanding of learner-centredness in the direction indicated by policy documents”. In Kenya, Lattimer and Kelly (2013, pp. 484-485) emphasised the importance of an “on-going dialogue” in which teachers were allowed to report back their concerns:

> The implementation would not likely have been successful if presented as a one-time professional development workshop or canned curriculum. […] Successful implementation required an on-going dialogue that took place with teachers and students before, during, and after the duration of the OHP [Oral History Project].

These perspectives are echoed by Niesz and Krishnamurthy’s (2013) discussion on the implementation of Activity-Based Learning in India, describing how teacher feedback was taken on board in order to adapt certain aspects of the reform such as the chosen learning materials. The issue of adapting to context is examined in more detail in the later “Room for Adaptation” section.

Degree of Engagement and Activeness

Unengaging and Passive Training as a Constraint

The next key characteristic of teacher education was the pedagogical approach utilised in the training courses themselves. In this regard, 6 texts highlighted examples of training courses that were unengaging and passive, and thus not seen to be conducive to effective LCP implementation. For example, Jennings (2012) highlighted that Jamaica’s Reform of Secondary Education had adopted a transmission-based approach to teacher training, with the focus on “telling the teacher *about* it, rather than *how to do it*” (p. 265; italics in original). In Malawi, Mtika and Gates (2010, p. 399) described teachers’ disappointment when “a lecture method was used to present learner-centred education.” In Turkey, Altinyelken (2011, p. 149) reported similar frustrations, with teachers expressing that it “was particularly frustrating for them to be introduced to a new pedagogical approach through dry presentations read from power-points or written notes.” In India, Niesz and Krishnamurthy (2013, p. 38) described the experiences of one teacher who had attended an expensive conference, but shared “the ironic story that the professors ‘spoke about constructivism for two and a half hours nonstop’”.

Engaging and Active Training as an Enabler

In contrast, 12 studies identified examples of training courses that were engaging and active. For example, in South Africa, Ghebru and Ogunniyi (2017, p. 57) reported that 64% of teachers highlighted that “collaborative and interactive classroom arguments and dialogues” in teacher training had “helped them to share their ideas” and had allowed them to develop “new insights about argumentation and its role in science teaching”. Similarly, when describing the implementation of peer coaching in Botswana, Thijs and van den Berg (2002, p. 64), teachers considered “collegial discussions beneficial because they provided an opportunity to hear their colleagues’ views on their teaching and to discuss suggestions for improvements.”. In India, Niesz and Krishnamurthy (2013, p. 37) reported that teacher educators “never lectured nor began with theory”. They explained: “Not that we never spoke theory at all. We spoke theory after showing the working models. After having seen [ABL in practice], then we explain[ed] to them the logical philosophy”.

Teacher Trainers

Teacher Trainers as Constraints

Certain characteristics of the teacher trainers themselves were also highlighted as constraints in 9 studies. Contradictions such as those presented in the previous section were apparent; for example, Otara et al., (2019) found that Rwandan teachers were frustrated with a lack of coherency from their trainers, who often lacked experience of implementing LCP themselves:

> One respondent said "we learnt different advantages of LCP while in college but none of our tutors used them as a model while teaching" […] Another teacher added, "our teacher at university gave us a list of methods called learner centered and argued that they are strong enough to develop skilled learners, however, he used 60% of his time on talking and writing".

In South Africa, Rogan and Aldous (2005, p. 331) stated that many teacher trainers "had little or no actual experience of its implementation", whilst in Ethiopia, Barnes et al. (2018) highlighted that teacher educators did not have the knowledge of the LCP-related reform and had not attended training to familiarise themselves with the espoused changes. In Tanzania, Msonde and Msonde (2018, p. 275) argued that there was "variability among teacher educators' orientations" which therefore increased "the disparities among school teachers that complicate the possibilities for their collaboration". Finally, in Cambodia, Courtney (2008) cited an example of a teacher trainer observing a student teacher, and argued that the feedback provided to the student implied only a superficial understanding of LCP.

Teacher Trainers as Enablers

Only two texts explicitly classified teacher trainers as "enablers" (although it may be that texts describing effective training courses may have implicitly linked effective training courses with effective teacher trainers). In Armenia, Hovhannisyan and Sahlberg (2010, p. 236) suggested that trainers were more likely to be effective as they had previously been teachers themselves:

> The new pool of selected trainers were schoolteachers, which allowed them to practice repeatedly all newly learned methods, adapt them to previous knowledge, develop their own style of teaching, master skills and apply them in teacher training. According to the interviews, most teachers found their practical background to be the main strength in their role as trainers.

Finally, in Tanzania, Roberts et al. (2015, p. 14) argued that the trainer (also the lead investigator) possessed "[i]n-depth content knowledge in participatory teaching methods", having "received advanced training in implementing inquiry-based teaching methods and had more than 10 years of experience applying these methods in practice".

Practical Experiences

Lack of Practical Experiences as a Constraint

In 13 studies, a lack of practical experiences in teacher education was considered a constraint to LCP implementation. Several studies reported that teachers had found training sessions too abstract and theoretical. For example, Altinyelken's work in Uganda (2010, p. 164) reported teachers' frustrations at the "lack of demonstrations on how CCP [child-centred pedagogy] could be practised in a classroom context", whilst her work in Turkey (2011, p. 149) also reported that training was "too theoretical and abstract, lacking practical guidance". In Vietnam, Saito et al. (2008, p. 99) reported that teachers had found training overly theoretical, suggesting that "[a]lthough this knowledge is important for teachers, it entails further steps to be taken by teachers to assimilate such philosophy and translate it into concrete expertise in their daily teaching practice". In South Africa, Blignaut (2015) candidly described criticisms of his own teacher training course, which most participants felt did not have sufficiently clear links to practical implementation of the curriculum. In Turkey, Haser and Star (2009, p. 299) described the shortcomings of a pre-service training course that failed to incorporate any teaching practices, meaning that participants struggled when they entered real classrooms.

Practical Experiences as Enablers

In contrast, there were 10 texts that cited examples of courses that did include practical experiences, which were seen to be enabling factors for LCP implementation. For example, in China, Lai (2010) reported that teachers were encouraged to observe public lessons from more experienced teachers, whilst in India, Niesz and Krishnamurthy (2013) described how experienced teachers were chosen to model LCP practices for less experienced teachers. It was noteworthy that both Di Biase (2015) in the Maldives and O'Sullivan (2001) in Namibia endeavoured to demonstrate new teaching approaches directly through their own teaching practices. Indeed, Di Biase indicated that teachers appreciated "team teaching" (p. 10), whilst O'Sullivan "taught lessons in the teachers' classrooms and used this to try out the effectiveness of the skills" (p. 105).

In Botswana, the questionnaire data of Thijs and van den Berg's (2002, p. 61) indicated that teachers had particularly appreciated microteaching sessions, given that they "enhanced participants' confidence in conducting peer coaching sessions" and thus "provided them with sufficient information on how to conduct peer coaching in practice" (p. 61). A range of practical experiences was also mentioned in Wang and Ma's (2009, pp. 247-248) study of student teachers in China. In addition to microteaching sessions with peers, student teachers carried out a five-week teaching practice, in which they had to observe teaching, plan lessons, discuss lesson plans with mentors, and carry out their own teaching. Wang and Ma argue that these were particularly important for the student teachers' development:

> These experiences were no doubt the most valuable for them to learn about teaching in real school contexts. During these five weeks they had the opportunity to test theories in practice […] During their micro-teaching, they had already tried to apply what they learned from both the ELT methodology course and the skills training course, but once they moved to real school context, they found some constraints on their initiatives […]. However, they tried to mediate the principles they had learned within classroom practice and made efforts to implement learner-centred teaching.

The idea that teachers developed this "contextual knowledge" to *adapt* their teaching to real contexts (in this case through practical experiences), is further developed shortly.

Reflection

Reflection as an Enabler

A total of 8 texts highlighted reflection in teacher education as an enabler of LCP implementation. In China, Lai (2010) describes how teachers were required to produce a series of written reflections after each teaching practice, after attending talks with experts, observing experienced teachers and even after having more informal conversations with colleagues. Also in China, Wang and Ma (2009) argued that "[o]pportunities to interact and reflect were found to be another important condition to enable change" (p. 251), indicating that reflective activities had helped student teachers begin to "critically examine their past experiences and beliefs, realising the value of LC in bringing better learning" (p. 245). In Tanzania, Msonde and Msonde (2019) found that teachers observing other colleagues, reflecting on what could be improved, and working together to form collaborative solutions, was particularly effective. This form of teacher collaboration is further examined in the upcoming section on “Teacher Collaboration”.

Room for Adaptation

Lack of Room for Adaptation as a Constraint

A total of 13 texts highlighted that teacher education courses, and to a great extent the curriculum itself, were overly rigid and prescriptive. In Ghana, Akyeampong (2017, p. 200) found that teacher education’s “vision of good primary school teaching was also linked to ‘mistake-free’ lesson plans—which meant following a prescriptive lesson delivery structure that had no room for reflection and change.” In Jamaica, Jennings (2012, p. 265) was critical of the “one-size-fits-all mass workshop” approach, indicating that there was “no attempt on the part of planners to ascertain how stakeholders would perceive the various attributes of [the reform]”. In Cambodia, Ogisu (2018, p. 776) was highly critical of the way an LCP reform was scaled up into a national policy:

> […] the menu-based and voluntary approaches were abandoned and the transformation model of education was watered down to be embedded in a highly centralised, top-down bureaucracy […] The Ministry’s decision to abandon the menu-based approach reflects policy actors’ mistrust of teachers. They regarded teachers as objects of policies decided in Phnom Penh [Cambodia’s capital city], rather than as active and autonomous professionals who can think and decide for themselves how they teach.

Room for Adaptation as an Enabler

In contrast, the notion of allowing teachers to adapt changes to local contexts was highlighted in 14 texts. For example, in Malawi, Croft (2002) stressed the importance of valuing localised teacher knowledge, for example supporting culturally appropriate oral teaching culture operationalised through the use of collective songs. Croft reflected that the reform "appeared to be supporting a culture where the knowledge teachers have about how to teach in particular contexts is beginning to be recognised and shared." (p. 332). She cited the perspectives of one teacher trainer who stated that "activities originating from teachers themselves probably have greater impact on teachers than those organised on their behalf" (p. 331).

In Kenya, Lattimer and Kelly (2013, p. 484-485) highlighted the importance of a dialogic approach to implementing externally developed approaches, arguing that this helped enable local stakeholders to feel ownership over the changes:

> This collaborative conversation allowed teachers, students, and researchers the opportunity to translate LCE approaches to the local context by asking questions and requesting clarifications in response to specific implementation concerns and then making connections between theory and practice. […] although the pedagogy was imported, the content that was being studied was intrinsically local. As members of the community, teachers and students owned the content, they had an investment in the integrity of the material, and, as such, were able to engage in a dialogue around the project as active and authoritative agents.

In Tanzania, Roberts et al. (2015, p. 8) described how the course allowed plenty of opportunities to receive feedback and tailor the content to local needs:

> On the first day I had the students and teachers work in small groups to identify what they knew about the topic as well as their goals and desired outcomes. We then decided together what the agenda for the program would be. Then, as far as possible, for four months the club students and

> their teachers conducted activities that were structured around the needs and interests of students and teachers.

Similarly, in Namibia, O'Sullivan (2001, 2004) carried out a needs assessment of the local context which aimed to ensure that the content was appropriate for local needs. Over a series of "training circuits", this led to several adaptations of earlier, more idealised, interpretations of LCP:

> [Difficulties of implementing LCP in context] led the author to question whether it would be possible to train teachers, within the limitations of the INSET programme, to use learner-centred approaches. This led to a hypothesis, upon completion of the first training circuit, that if the INSET content included simple learner-centred activities which took the realities within which teachers worked into account, teachers would be able to implement these activities in their classrooms. (2004, p. 596).

In India, Niesz and Krishnamurthy (2013, p. 42) cited the "dynamism and flexibility" of the reform as an important part of its success, stating that "[a]lthough their goal was to convince teachers of the value of ABL [Activity-Based Learning], reformers accepted substantive input from the grassroots", with some teachers becoming "full participants in the reform activity itself". Finally, in the Maldives, Di Biase (2015, p. 15) found that by attempting to teach herself in real classrooms through "team teaching", there were certain difficulties that not even the trainer could overcome:

> Teachers brought local knowledge to the process and I brought constructivist ideas about teaching and, together, we crafted lessons as part of the pedagogical intervention. […] Experiencing the circumstances of the Maldivian teachers highlighted some of the challenges they face in using active learning methods. In some lessons our combined effort allowed us to overcome some of

> the stated difficulties while, at other times, I simply experienced the problem myself without finding a solution. These experiences certainly allowed me new ways of seeing and experiencing the Maldivian education system.

Teacher Collaboration

Lack of Teacher Collaboration as a Constraint

Another main theme emerging from the review was that of teacher collaboration. In 7 texts, a lack of teacher networking and collaboration, during and after teacher training, was cited as a constraint to LCP implementation. Authors such as Di Biase (2019) in the Maldives highlighted teachers' isolation and subsequent difficulties when creating collaborative learning communities; however issues of isolation were also mentioned by less geographically isolated contexts such as Haser and Star (2009) in Turkey. In Morocco, Smail (2017) argued that teachers of Arabic had relatively few opportunities for collaboration and networking, especially in contrast to teachers of English as a foreign language. Finally, Saito et al. (2008) reported several difficulties when attempting to encourage a collaborative atmosphere in Vietnam. Saito and colleagues had created professional teacher meetings (PTMs) for teachers to discuss how to assimilate LCP-related approaches in their own classrooms. However, they found that "PTM tends to function as an arena to 'evaluate' colleagues" and that it was "extremely difficult to develop relationships in which the teachers are able to share their expertise, skills or insights" (p. 99). The authors also found that more experienced teachers tended to dominate the discussion, and that the group as a whole was "unable to engage in frank and fruitful dialogues as well as to develop mutual trust" (p. 101).

Teacher Collaboration as an Enabler

In contrast, there were 11 texts that mentioned teacher collaboration as an enabler to LCP implementation. In Armenia, Hovhannisyan and Sahlberg (2010, p. 236) highlighted the importance of a newfound "Culture of cooperation": In China, Sun and Gao (2019, pp. 7-8) described the way teachers worked together to co-create flipped learning materials:

> Each teacher reviews the revised material individually and then discusses them collaboratively as a group. During the week, the group leader organizes class observations and group members evaluate the effectiveness of lesson plans as well as the instructional videos. At the end of the week, the group reflects on materials together and make improvements.

Two other case studies from China (Lai, 2010 and Wang & Ma, 2009) described similar collaborative approaches as being successful in helping teachers assimilate new teaching approaches. Wang and Ma (2009, p. 251) argued that a collaborative approach had helped create a "critical learning community" in which collective beliefs and practices began to be established between fellow teachers and teacher educators. Finally, in Morocco, Smail (2017) argued that teacher networks were particularly active and effective in the context of English as a foreign language, although these were much less prevalent for teachers of Arabic.

Training in a Foreign Country

Training in a Foreign Country as an Enabler

A final example emerging from the review was that of training in a foreign country. Allen et al. (2018) studied the experiences of Indonesian secondary teachers who had taken part in an "offshore programme" in Australia, and made the case that such programmes may leader to more significant changes in teachers' beliefs in comparison to in-country programmes. Allen and colleagues argue that teachers who are asked to change in their home countries may be "powerless to change" (p. 33), and that by travelling abroad, teachers "were able to transform their habitus of teaching and recognise a different approach to teaching and learning". They add that "displacement appeared to allow the teachers to work at the elbow of teachers operating in a different habitus and in so doing, allowed a juncture to make a break with the past".

Summary and Discussion

This systematic review on the implementation of LCP in low- to middle-income countries has yielded several key themes relating to teacher education. Given the continued global importance directed towards LCP in the educational development sphere (UNESCO, 2017; UNESCO, 2021) and the centrality of teacher education in making educational changes, the findings from our systematic review will be of value for policymakers in low- and middle-income countries. Indeed, although each of the studies in this review inevitably contains contextual and methodological differences, there were a number of commonalities that policymakers might consider when planning their own teacher education provision in contexts where LCP has been explicitly encouraged. Specifically, we have drawn the following conclusions based on the 59 texts analysed in this review:

1. Teacher education experiences need to be long enough for teachers a) to acquire an adequate understanding of the required changes; and b) to consider ways in which they might assimilate these changes in their practice;
2. Teacher training institutions need to be equipped with adequate and appropriate resources to facilitate teachers' reflections on how they might carry out learner-centred practices;
3. Teachers are likely to need ongoing support after attending initial training courses. One-off training sessions are unlikely to be effective in promoting longer term change;

4. Teacher education experiences are more likely to be effective if they encourage participants’ active participation in teacher training activities. This is important in order to engage teachers in the learning content, but also to help model learner-centred practices (i.e., for teacher training to be delivered in a way consistent with LCP principles).
5. Where possible, teacher education experiences should incorporate opportunities for participants have real practical experiences of putting LCP into practice, for example through microteaching, peer observation, and teaching practice. This allows them to experience and experiment with LCP first-hand;
6. Before training student teachers, teacher trainers should be trained and gain adequate experience of operationalising LCP in practice;
7. Teacher education experiences should allow opportunities for participants to reflect about themselves and their teaching. Crucially, this reflection should permit contextual flexibility; that is, teachers should be encouraged to consider how they might be able to adapt the general spirit of the LCP-related changes within their constraints of their contexts;
8. Teacher education should build in opportunities for teachers to collaborate, during and after the initial sessions. Networks of teachers who are interested in implementing LCP in their own contexts may help formulate “Communities of Practice”, where they may share common concerns and interests to achieve shared goals (Lave & Wenger 1991).

It should be noted that many of these points were mentioned, albeit relatively briefly with reference to 12 studies, by Schweisfurth in her paragraph on teacher training in LCP implementation (2011, p. 428). The findings of this review, drawing on a wider pool of 59 texts, provide further support to substantiate the arguments made by Schweisfurth.

One might question the extent to which many of the aforementioned recommendations are realistic in low- and middle-income countries. Clearly, the suggestions would imply a significant investment in time and resources on the part of national governments, which may not always be possible in many low- or middle-income countries. Indeed, as the review identified, many LCP-related changes were introduced in the backdrop of greater educational problems, such as teacher shortages, poor working conditions and limited incentives for teachers. Systemic issues such as the poor conception and communication of LCP-related changes may continue to prove problematic for stakeholders in teacher education, and there are of course additional constraints such as material constraints, student resistance, and inconsistency with national examinations, which are not examined in this article (see Sakata et al., 2022 for a comprehensive overview of contextual constraints). In this sense, teacher education represents only one fundamental "part", albeit very important, of this complex educational change process, and the people within it (teachers, teacher educators) represent only a selection of the fundamental "partners" required to effect long-term change (Wedell, 2013).

Indeed, given the large number of contextual constraints that are typically found in low-income contexts including shortages of material and human resources as well as cultural differences (see, e.g., Schweisfurth, 2011), one might argue that point number 7, on contextual flexibility, might be worth prioritising by educational policymakers. The review shows that LCP-related reforms are rarely implemented successfully when done so in a prescriptive, one-size-fits-all fashion. Many case studies suggest that teachers need a certain degree of flexibility to properly internalise new ideas, and then time to reflect and experiment with changes in their contexts. The notion of contextual flexibility is regularly emphasised in the more general and/or theoretical teacher education literature. For example, in the field of language teacher education, Kumaravadivelu (2012) proposes a non-prescriptive, flexible, “post-transmission” (p. 8) or “post-method” (p. 9) approach to teacher training, whilst Diaz Maggioli (2012) advocates “visionary professional development” (p. 139) in which teachers’ receive “scaffolding” during teacher training to help them decide how they can adapt different teaching approaches in their contexts. Finally, perhaps one of the more noteworthy suggestions is Malderez and Wedell’s (2007) “pendulum” model (p. 35). In this model, teachers are requested to think about their own contexts in considerable detail, even before they are introduced to new theories and teaching approaches. Only after they have considered their contexts in detail, do they begin to think about any external content (e.g. the concept of LCP). Finally, armed with some theoretical knowledge of external theories, the “pendulum” swings back to their own context, and they are invited to think how they might adapt or blend these theories within their own classrooms with their own students. As such, policymakers may focus on some, if not all, of the eight recommendations above (e.g. point 7 on reflection upon contextual flexibility) when considering the feasibility of implementing LCP in their settings.

The arguments here would appear clear: external ideas are much more likely to be adapted (if not adopted) if they are appropriated or filtered through the localised contextual knowledge of real teachers. However, it is worth noting that in order for a more contextually flexible approach to teacher education to happen, a change in fundamental beliefs may be needed from those policymakers responsible for introducing educational changes. Decision makers who still see educational change processes as simplistic, rational, one-size-fits-all processes are understandably unlikely to integrate flexibility into teacher education provision; therefore, perhaps a “reculturing” of policymakers’ understandings of educational change processes may be needed before complex changes like the movement to LCP may have a higher chance of being implemented successfully (Fullan, 2015). In summary, this systematic review of LCP implementation in low- and middle-income countries, one of the first of its kind focusing on teacher education, revealed a number of interrelated factors crucial to be dealt with if implementing LCP-related approaches in lower-resource settings.

Limitations of the Review and Recommendations for Future Research

As mentioned earlier, this paper on teacher education formed part of a larger systematic review on the implementation of LCP in low- to middle-income countries. The key advantage of a systematic review is that it brings together the main findings of individual research studies, which, as we have argued earlier, provides a “big picture” of the characteristics of teacher education that may have positive or negative impacts on LCP implementation. Despite this, there were certain limitations of the review.

Firstly, the final number of texts that discussed teacher education was 59, which some might consider a rather small number. Indeed, one inherent limitation of systematic reviews is that, by definition, they only include texts that meet their inclusion criteria. Because of this, it is possible that there may have been relevant texts that did not contain LCP-related keywords in the title and abstract. In future research, a possible solution to this would be to expand the search terms to additional terms linked to LCP. For example, using Bremner’s (2021) 6- or 10-aspect framework of LCP, terms such as “active learning”, “autonomy” and “formative assessment” (and related words) could be utilised to potentially increase the number of texts. Admittedly, this may not increase the number massively, given that the term “learner-centred” (or similar terms) only needed to be mentioned at least once in the title and abstract, meaning that there were several texts relating to concepts like “active learning” already (e.g. the study of Niesz & Krishnamurthy, 2013). An additional limitation was the sole focus on journal articles in our systematic review, and future reviews could expand this to different formal and informal publications, including “grey” literature. Moreover, the study only included texts from low- to middle-income countries, and focused only on primary and secondary education; future reviews could expand their scope relatively easily.

In terms of the characteristics of individual studies, it was noteworthy that certain geographical regions were relatively underrepresented in our review. For example, there was not one country from Latin America in the review despite all countries in the region being low- or middle-income countries (Belize was not included in Latin America for the purposes of our study), although there might have been relevant literature written in other languages such as Spanish and Portuguese. Moreover, it was interesting that most studies presented a somewhat “holistic” picture of the case in question, providing information not only on teacher education but also on other constraints and enablers to reform implementation. Indeed, studies tended not to explicitly identify positive and negative characteristics of teacher education: such characteristics had to be inferred by ourselves as we carried out the review. Research that explicitly analysed different characteristics of teacher education, as we have done in this review, would be interesting and useful, in particular those incorporating a comparative dimension. Finally, there were few studies focusing on the longer-term effects of teacher education, with certain exceptions (e.g. Allen et al., 2018 in Indonesia). Future research could utilise longitudinal or retrospective (e.g. life history) research to better understand how LCP-related reforms have continued to shape teachers’ beliefs and practices.

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**These texts formed part of the review.*

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