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The outcomes of learner-centred pedagogy: A systematic review

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ABSTRACT

An increasing number of studies have investigated the implementation of Learner-Centred Pedagogy (LCP) in different countries, but there is still limited empirical evidence on what impacts LCP may have on learners and learning. This article summarises the findings of a systematic review of 62 journal articles reporting the outcomes of LCP implementation in low- to middle-income countries. The review found relatively few studies that provided objective evidence of LCP effectiveness. A higher number of studies identified non-objective perspectives of LCP effectiveness, such as teacher and student perceptions, as well non-cognitive outcomes such as increased student motivation, confidence, and enhanced relationships.

1. Introduction

Learner-Centred Pedagogy (LCP) is a general approach to teaching and learning which seeks to place the learner as the centre of the learning process, as opposed to traditional Teacher-Centred Pedagogy in which learners passively receive information from teachers. LCP has been introduced, in a variety of ways, in most countries worldwide (Schweisfurth, 2013), and has been explicitly promoted by numerous international agencies and donor agencies (Tabulawa, 2013; Vavrus and Bartlett, 2013). Despite this, we know relatively little about what the outcomes of LCP implementation are. This paper reports the findings of a systematic review of journal articles relating to LCP implementation, with a specific focus on those articles citing outcomes of LCP.

1.1. What is learner-centred pedagogy?

LCP has been defined in numerous different ways, and such conceptual discussions have been debated extensively in recent research (Bremner, 2021; Neumann, 2013; Starkey, 2017). For the purposes of this review, we utilised Bremner's (2021) six-aspect framework for conceptualising LCP, as summarised in Table 1. We adopted a broad and flexible approach to interpreting LCP, and therefore considered texts for analysis if they focused on any one or more of the six aspects (in addition to several other inclusion criteria, to be discussed shortly).

1.2. Why has LCP been introduced?

We might better understand the potential outcomes of LCP implementation if we consider the possible reasons that LCP has been introduced. Schweisfurth (2013) suggests that there are three 'justificatory narratives' for LCP implementation. The first is the 'economic' perspective, which is based around the assumption that LCP will better prepare students for the demands of a changing world. National governments are understandably interested in becoming as economically competitive as possible, and the argument is that young people will need certain key skills such as critical thinking and creativity to achieve such competitiveness, skills that are more likely to be fostered through LCP (Sahlberg and Oldroyd, 2010).

The second justificatory narrative is the 'cognitive' perspective, which essentially means that children *learn more* under LCP than under previous approaches. LCP is often associated with constructivist theories of learning advocated by Vygotsky and Piaget, and authors such as Ginnis (2002) have argued that such approaches may have significant benefits and lead to 'deeper' learning compared to behaviourist approaches.

The third and final justificatory narrative is the 'emancipatory'

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Table 1
Possible aspects of Learner-Centred Pedagogy (adapted from Bremner, 2021, p. 172).

Aspect of LCP	Summary
1. Active participation	Learners are actively involved in learning (aka 'learning by doing', hands-on learning); learners interact with themselves and the teacher (e.g. through pair and group work).
2. Adapting to needs	Planning for learning begins with a consideration of learners' prior knowledge, skills and experiences (the central tenet of the theory of constructivism); learning is flexible and adapted to learners' needs and preferences (including emotional needs).
3. Autonomy	Learners work by themselves; learners take responsibility for their own learning; learners not only learn content but also develop their lifelong 'learning to learn' skills (metacognition).
4. Relevant skills	Content is meaningful, and relevant to learners' real lives; learners develop 21st Century skills such as analysis, critical thinking, creativity and lifelong learning.
5. Power sharing	Learners become involve in decision-making in dialogue with peers and the teacher; traditional power distances between teachers and students are reduced; there may not necessarily be 'one right answer'; both teacher and students' opinions are valued.
6. Formative assessment	Learning is seen as an ongoing process, not just a product; formative assessment is a key part of learning (e.g. self- /peer-assessment).

perspective, which suggests that LCP may have wider benefits to society, such as reducing inequalities, giving students more of a voice, and seeing knowledge as less 'fixed' (e.g., Freire, 1970; Giroux, 1997; Biesta, 2006). Schweisfurth recognises that the three justificatory narratives may overlap with each other; for example when students express themselves through more open dialogue, this may lead to 'deeper' learning, thus relating to emancipatory *and* cognitive perspectives.

1.3. The implementation of LCP in low- to middle-income countries

The launch of Education for All (EFA) in 1990 marked the outset of LCP dissemination, with donor agencies agreeing that curricula and learning materials should be 'learner-centred [and] participatory' (Haddad et al., 1990, p. 68). Since then, LCP has been considered by many education systems and organisations to be some sort of 'best practice' (Schweisfurth, 2015). Indeed, over the last few decades, LCP has been consistently embraced through a series of international educational agenda, from the Millennium Development Goals through to the Sustainable Development Goals (e.g., UNICEF, 2009; UNDP, 2014; UNESCO et al., 2015). Some of the most recent policies, including UNESCO Futures of Education (UNESCO, 2021), continue to espouse LCP in the context of virtual learning, albeit with an acknowledgement of the need for a knowledge-based approach in conjunction with learner-centred principles (pp. 64–65).

With the ever-growing diffusion of LCP under the aid architecture, many researchers have examined its implementation in low- and middle-income countries. There are many examples of unsuccessful implementation (Guthrie, 2021), with obstacles ranging from material and human resource scarcity, lack of qualified teachers, system incompatibility to LCP, and the inconsistency between LCP concepts and cultural expectations (Schweisfurth, 2011). Conversely, there have also been some examples of relatively successful LCP-related changes, such as Thompson (2013) and Lattimer and Kelly (2013) in Nigeria and Kenya respectively.

Even if LCP is successfully 'implemented' in terms of being evident in the classroom, it is still unclear whether it can translate into its expected outcomes (Schweisfurth, 2013). In light of the cognitive justification of LCP implementation, Ngware et al.'s (2014) systematic observation analysis of classroom activities in high-, middle- and low-performing schools in Kenya found that high-performing schools had higher levels of LCP. In Barbados and Trinidad, Layne et al. (2008) reported an improvement of most pupils' attainment scores as well as their positive attitudes toward working with others. In contrast, the results from the Programme for International Student Assessment indicate lower achievement among the countries with more LCP practices than their Asian counterparts, which generally use less critical thinking, creative learning or problem-solving activities in classrooms (Deng and Gopinathan, 2016). Other international examinations such as the Trends in International Mathematics and Science Study and the Progress for International Reading and Literacy Study have also shown mixed results in terms of the relationship between student performance and the degree of LCP implementation (Schweisfurth, 2013). Such contradictory results between the empirical literature and international tests indicate that the associations between LCP and learning achievement remain unclear.

Furthermore, policymakers tend to be most interested in students' academic outcomes when evaluating educational reforms, but this is not the only outcome that is used to justify LCP promotion (Schweisfurth, 2013). For example, Cornelius-White and Harbaugh (2010) stress that LCP contributes to 'the development of the whole learner' (p. 105), whilst Gallagher (2003) argues that LCP helps develop 'cognitive flexibility, self-direction, cooperation [and] resourcefulness' (p. 96). Within these broader conceptualisations of 'outcome', Cornelius-White (2007) carried out a meta-analysis of 119 studies conducted largely in high-income countries, and found associations between LCP and students' cognitive, affective and behavioural outcomes.

Cornelius-White's study was important in the sense that it provided a more comprehensive picture of whether and in what ways LCP may yield positive cognitive and non-cognitive outcomes across a wide range of contexts, albeit in the context of higher-income countries. However, to our knowledge, there have been very few systematic reviews or meta-analyses examining the relationships between LCP implementation and its cognitive and non-cognitive outcomes in low- and middle-income countries. This is significant, given that global agencies have continued, and will continue, to facilitate LCP under the current aid architecture of education (Mundy, 2016). Without empirical evidence that could be generalisable to a wider population and contexts, the promotion of LCP as some sort of 'best practice' in low- and middle-income countries may be questionable and perhaps even unethical (Guthrie, 2017; Nguyen et al., 2009). Our study thus systematically and comprehensively investigates whether and how LCP translates into better outcomes – both cognitive and non-cognitive – in the context of low- and middle-income countries.

2. Method

This study reports on part of the findings of a larger systematic review on the implementation of LCP in low- to middle-income countries. The aims of the project were a) to 'map' the literature on LCP implementation; b) to assess the *extent* of LCP implementation; c) to establish *enablers and constraints* to LCP implementation; and finally d) to ascertain the *outcomes* of LCP implementation, which is the focus of this paper. The systematic review was conducted by a team of three researchers, using a combination of the review software EPPI-Reviewer and the qualitative data analysis software QSR NVivo. The flow diagram in Fig. 1 summarises the entire process of retrieval, screening, and analysis of texts.

Firstly, in Stage 1, we used EPPI-Reviewer to import texts from nine 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), Social Science Database (ProQuest). There were five inclusion/exclusion criteria at this stage. Texts needed to:

- Be peer-reviewed *journal articles*;
- Be *written in English*;
- Focus on *low- to middle-income countries*;

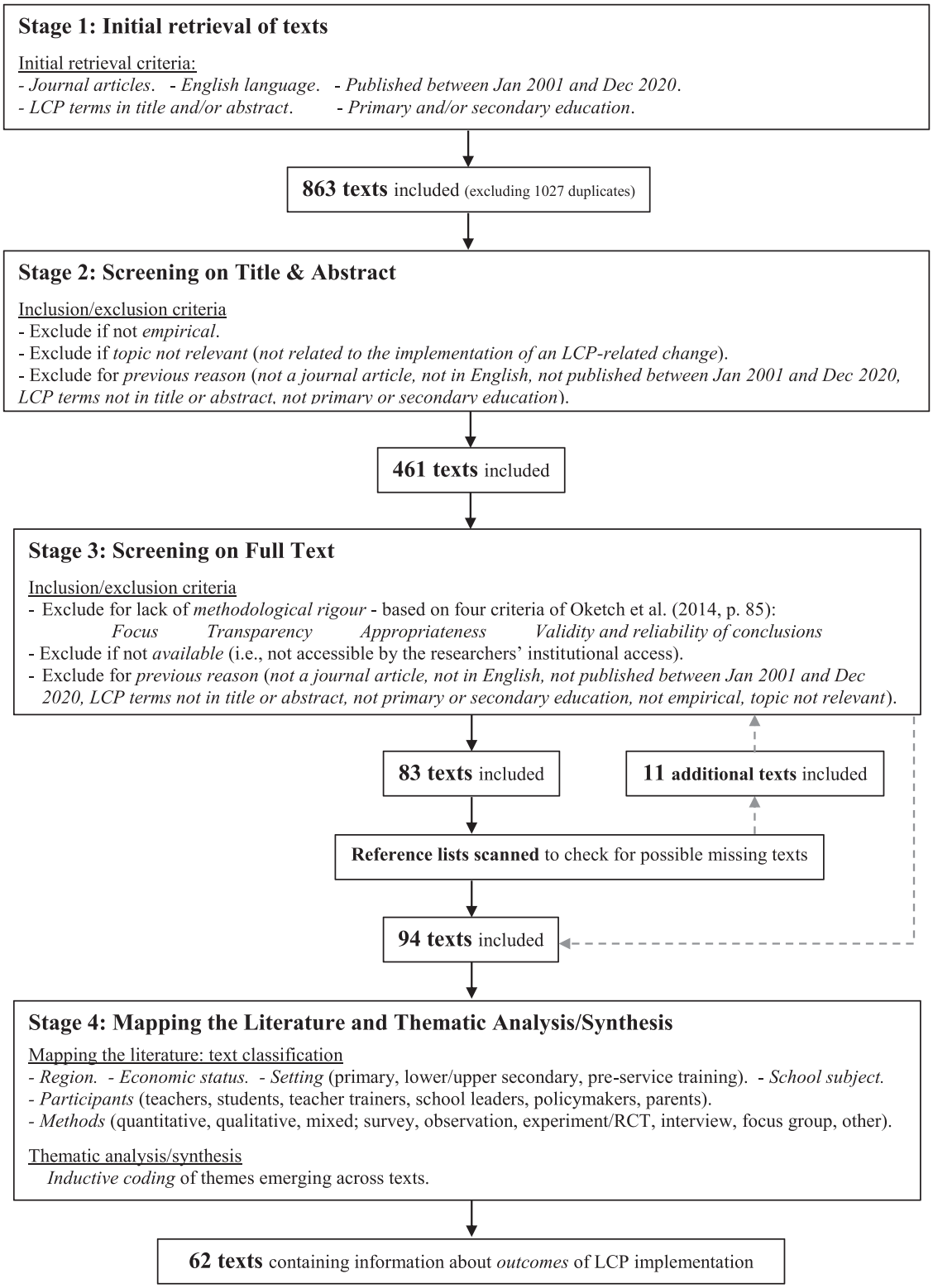

Fig. 1. Flow diagram outlining process of retrieval, screening, and analysis of texts
Adapted from Authors (2022).

- Focus on *primary and/or secondary education*;
- Have the words '*learner-centred*', '*student-centred*', '*child-centred*' (or American variations of these terms) in the title and/or abstract (see Appendix 1 for full search terms).

Regarding the search terms, it is important to stress that we did not use additional terms such as the potential sub-characteristics of LCP (for example related terms such as 'active learning', 'autonomy', etc.) in order to keep the total number of texts relatively manageable. However, it is worth reiterating that our approach to conceptualising LCP was to interpret it as broadly as possible. Thus, provided that texts had the terms 'learner-centred', 'student-centred', etc. in the title and/or

abstract, we took them forward for review, as long as they focused on any one or more of the six aspects proposed by Bremner (2021), i.e. '*active participation*', '*adapting to needs*', '*autonomy*', '*relevant skills*', '*power sharing*' or '*formative assessment*'. This meant that the final texts displayed quite a range of interpretations of LCP, which as Bremner identifies, is quite typical in the literature.

A total of 863 texts were imported into EPPI-Reviewer by the end of Stage 1, excluding 1027 duplicates. A limitation of systematic reviews is that there may be the possibility of missing relevant texts that do not technically meet the inclusion criteria (e.g., Ngware et al., 2014; Vavrus, 2009). We did not include any of these additional texts, as we felt there would not be an objective way of deciding which extra texts to include and which to exclude. There were also some texts which did meet our criteria, but were missed at earlier stages of retrieval. We were able to include such texts by scanning the reference lists of included texts, a common practice in systematic reviews (Brunton et al., 2012).

In Stage 2, at least two reviewers scanned the title and abstract of each of the 863 texts. In addition to verifying that the texts met the initial five criteria, two further criteria were added. Texts needed to:

- Be *empirical* (i.e. studies had to be drawn from quantitative and/or qualitative evidence);
- Be clearly *relevant to the topic* (i.e. they needed to be clearly presented in the context of LCP implementation).

After the texts had been reviewed by at least two reviewers, all differences were discussed and agreed upon using EPPI-Reviewer's 'reconciliation' functionality. By the end of Stage 2, the 863 texts were reduced to 461.

In Stage 3, the remaining 461 texts were included or excluded based on our assessment of their degree of methodological rigour. We adopted the 'quality appraisal criteria' from another systematic review of education (Oketch et al., 2014), which consisted of the following criteria: *focus*, *transparency*, *appropriateness*, and *validity and reliability of conclusions*. The process of agreeing to include or exclude texts based on methodological rigour was somewhat challenging, as all research inherently contains limitations. However, in the same way as in Stage 2, each text was read by at least two reviewers. Where there were disagreements or 'borderline' inclusions or exclusions, a third reviewer was required to make the final decision. By the end of Stage 3, the 461 texts were reduced to 94. This included 19 texts which we were unable to locate online, despite comprehensive internet searches.

Finally, in Stage 4, each of the remaining 94 texts was read in detail by at least two researchers simultaneously over videocall. At this stage, we categorised each text based on key variables (see Table 2). We then utilised NVivo to conduct an inductive thematic analysis of the findings. After coding each text, two researchers comprehensively checked each of the codes and reorganised them to make sure that each code contained relevant information. A total of 182 separate nodes were created in NVivo in the final version. It should be noted that there were only 62 texts (out of 94) that explicitly referred to the *outcomes* of LCP implementation, which is the focus of this paper.

3. Findings

We now present the findings of the review. Table 3 summarises the number of texts that were coded in each category, whilst the following sub-sections discuss the categories individually with a selection of illustrative examples in each. It is worth stating at this point that although we have strived to provide as many detailed examples as possible, the nature of a systematic review to provide an overall picture of current research means that we may inevitably be seen as 'decontextualising' the findings. We hope that the individual examples we include will provide readers with enough information so that they may further investigate the particularities and complexities of the individual studies that most interest them.

Table 3
Summary of outcomes of LCP implementation.

Outcome	No. of citing articles
All positive outcomes	***57***
Students' general positive experiences	23
Teachers' general positive experiences	28
Objective measures of student progress	9
Non-objective perceptions of student progress	26
Teacher perceptions	23
Student perceptions	11
Non-cognitive outcomes (positive)	23
Motivation and/or interest	*13*
Confidence and/or self-efficacy	*13*
Changes in relationships (positive)	16
Student-teacher relationships	*16*
Student-student relationships	*13*
All limited or negative outcomes	***21***
Students' general negative experiences of LCP	7
Objective measures of student lack of progress	0
Non-objective perceptions of lack of student progress	9
Non-cognitive outcomes (negative)	3
Limited or negative changes in relationships	4

Table 2
Summary of key information from the 62 review texts.

Text classification	Distribution of texts					
Region	*Sub-Saharan Africa*	*East Asia & Pacific*	*Europe & Central Asia*	*Middle East & N Africa*	*South Asia*	*Latin America & Caribbean*
No. of texts	29	15	8	5	3	2
Country status	*LIC*		*LMIC*		*UMIC*	
No. of texts	8		23		31	
Educational setting	*Primary*		*Secondary*		*Both primary & secondary*	
No. of texts	28		34		6	
Participants	*Teachers*	*Students*	*Teacher trainers*	*School leaders*	*Policy-makers*	*Parents*
No. of texts	52	25	4	12	4	2
Quanti, quali, or mixed methods?	*Quantitative*		*Qualitative*		*Mixed methods*	
No. of texts	8		29		25	
Quantitative methods used	*Survey*	*Observation*	*Experiment*		*Other*	
No. of texts	26	16	9		9	
Qualitative methods used	*Survey*	*Observation*	*Interview*		*Focus group*	*Other*
No. of texts	14	33	43		14	24
School subject	*General*	*Maths*	*Science*	*Local language*	*Other language*	*Other*
No. of texts	25	10	23	5	8	7

3.1. Students' general experiences

Students' general comments about positive experiences were coded in 23 of the 62 texts. Several texts mentioned students' 'enjoyment' (e.g., Akello and Timmerman, 2018 in Uganda; Sifuna and Kaime, 2007 in Kenya; Stears, 2009 in South Africa), or related words such as 'appreciation' (e.g., Bature and Atweh, 2019 in Nigeria) or 'satisfaction' (e.g., Wahyudi and Treagust, 2004 in Indonesia; Voogt et al., 2009 in Tanzania). In the Maldives, Di Biase (2015, p. 11) observed students being 'energized and engaged' in more learner-centred activities. In Kenya, Lattimer and Kelly (2013, p. 479) found that students' (and teachers') responses to the learner-centred Oral History Project were 'overwhelmingly positive with every participant reporting that they had a favourable experience, would recommend the project to others, and would seek out other similar experiences' in the future. In Palestine, Shraim and Khlaif (2010) reported that over 80% of students had a positive perception of the usefulness of the learner-centred intervention.

Many texts also highlighted that students *preferred* LCP approaches to previous approaches (e.g., Mungoo and Moorad, 2015 in Botswana; Msonde and Msonde, 2018 in Tanzania; Ozkan and Topsakal, 2020 in Turkey). In Indonesia, Wayhudi and Treagust (2004, p. 468) compared students' perceptions of one 'exemplary' (more learner-centred) teacher in comparison to 'non-exemplary' (more teacher-centred) teachers, and found that students in the 'exemplary' teacher's classroom 'perceived their learning environment more favourably' than students in the 'non-exemplary' teachers' classrooms. In Egypt, Shahat et al. (2017) argued that a learner-centred teaching unit had had a significant effect on students' perceptions on the quality of instruction. In Tanzania, Voogt et al. (2009) reported similar results, reporting that a learner-centred intervention had led to a significant change in students' perceptions of their classroom environment.

Not all students' perceptions were positive; indeed, we coded 7 texts in which general comments about negative experiences of LCP were mentioned by students. A few texts (e.g., Cianca, 2012 in Ethiopia; Ozkan and Topsakal, 2020 in Turkey; Lattimer and Kelly, 2013 in Kenya) reported largely positive results, but nevertheless cited a small minority of students who did not like the new LCP approaches. For example, Lattimer and Kelly (2013, p. 480) described how a more active approach espoused during the Oral History Project had 'led students to experience both joy and stress'. In Botswana, Mungoo and Moorad (2015) cited some cases in which high achieving students had expressed frustration in working with mixed ability groups. In Tanzania, Voogt et al. (2009) found that one of the teachers had received less positive opinions from students, despite the teacher being rated highly in terms of the learner-centredness of their teaching. It should be noted that examples like the previous highlight the limitations of relatively small-scale research, given that numerous other factors may have contributed to students' positive or negative views.

3.2. Teachers' general experiences

A total of 28 out of the 62 texts cited examples of teachers' positive experiences of LCP. In Ethiopia, Cianca (2012, p. 416) cited teachers' 'excitement' at LCP approaches, whilst several studies reported general comments of positive teacher feedback (e.g., Burner et al., 2017 in Iraqi Kurdistan; Sifuna and Kaime, 2007 in Kenya). In Uganda, Akello et al. (2016, p. 258) described teachers' enjoyment and interest in LCP, with some teachers feeling that teaching was 'easier' under a new approach (see also Stronkhorst and van den Akker, 2006, p. 1782). Other texts described examples of teachers viewing LCP classes as a 'success' (e.g., Khoboli and O'Toole, 2011, p. 86 in Lesotho; Voogt et al., 2009, p. 435 in Tanzania).

Several texts mentioned teachers' conceptions or beliefs towards LCP as a result of taking part in LCP implementation. Some of these presented teachers' positive experiences of newly introduced LCP curricula (e.g., Gado, 2005 in Benin; Isikoglu et al., 2009 in Turkey; Joong et al., 2019 in China; Kerkhoff et al., 2020 in Kenya), whereas other texts made more explicit references to the development of teachers' beliefs. For example, in Armenia, Hovhannisyan and Sahlberg (2010, p. 235) indicated that teachers began to 'reflect on their own thinking and became critical of their beliefs regarding teaching and learning.' In South Africa, Ghebru and Ogunniyi (2017) analysed pre-service teachers' beliefs before and after participating in training relating to argumentation in science teaching. The authors found that, after the intervention, 'the majority of the [teachers] (84%) had made noticeable perceptual shifts from their initial stances at the pre-test.' In Belize, Hull et al. (2016) found that LCP approaches were correlated with increased teacher self-efficacy. That is to say, teachers were more likely to consider themselves as effective teachers when implementing LCP approaches.

Some teachers highlighted that teachers' beliefs had changed gradually as they experimented with LCP approaches in practice (e.g., Bature and Atweh, 2020 in Nigeria; Khoboli and O'Toole, 2011 in Lesotho). For example, Lattimer and Kelly (2013, p. 480) described that the Oral History Project 'had a significant impact on students' perceptions of their role as learners and teachers' perceptions of their role as educators', stating that teachers began to change their own beliefs as they implemented the project and 'witnessed the enthusiastic response of their students'.

It is noteworthy that there were no texts categorised as teachers' 'general' experiences of LCP that were negative or limited, although all negative experiences were coded more specifically (i.e. student progress, psycho-emotional outcomes, relationships). Moreover, virtually all evidence of teachers' general experiences were self-reported. Given that LCP has been widely promoted as 'best practice' in a number of contexts (Schweisfurth, 2015), it is possible that implicit pressures may have encouraged teachers to provide positive answers (cf. participant bias – Smith and Noble, 2014). This potential methodological issue, and others, are examined in the Discussion section.

3.3. Objective measures of student progress

The previous two categories of students and teachers' general experiences may indicate their positive (or negative) dispositions towards LCP, but they do not tell us specifically about the extent to which LCP implementation may have impacted on student progress (i.e. their academic learning outcomes). In this section we present studies that attempted to provide 'objective' evidence of this progress. Only 9 out of the 62 studies contained what we considered objective evidence; that is to say using external and/or standardised measures that sought to link LCP with improved academic learning outcomes.

In Tanzania, Msonde and Msonde (2017, 2018) compared pre- and post-tests results of 265 secondary school learners of mathematics, and reported that achievement increased from 8% to 36% in one lesson. Admittedly, such conclusions are limited given that only one lesson was reported, achievement still appeared somewhat low, and it was unclear how much learning may or may not have occurred using previous approaches. In Uganda, Akello et al. (2016) reviewed the exercise books of 93 primary students who had received a child-centred approach to teaching the local language. The authors reported some improvements in writing proficiency; however, as in the previous example, no comparative data were provided. In Malaysia, Ismail and Alexander (2005, p. 67) compared three variations on 'student-centered instructional strategies' of peer tutoring with 48 high school students. The authors found that the more structured interactions, albeit still considered learner-centred, were most effective. Again, the findings are somewhat limited here, mainly because, as the authors recognise, they 'were not able to address whether students learned more using a peer-tutoring strategy than they would have learned on their own' (p. 75).

In light of the previous limitations, studies including comparison or control groups may be considered more valid when investigating the potential effectiveness of LCP. Although not explicitly providing an

experimental vs. control group, Cianca (2012, p. 411) observed 47 primary students in Ethiopia, and analysed the frequency of English language interactions in traditional 'workbooks' in comparison to 'reading buddies interactions'. Cianca found that there were more examples of English language use in reading buddies activities, which we might indirectly link to positive learning outcomes.

Perhaps the most convincing evidence for improved learning outcomes as a result of LCP implementation come from the remaining 5 texts, all of which a) focus on the area of science teaching, and b) report statistical comparisons of experimental vs. control groups. In Egypt, Shahat et al. (2017) compared the performance of 64 middle school students in a student-centred teaching unit in comparison to 63 students who had received traditional teacher-centred methods. The authors reported that the intervention group performed significantly better in terms of content knowledge, problem-solving abilities and experimental strategy knowledge. In Turkey, Ozkan and Topsakal (2020) carried pre- and post-tests with 74 secondary school students: 37 students in the learner-centred experimental group and 37 in the more teacher-centred control group. The authors reported that the experimental group outperformed the control group both in terms of conceptual understanding and their overall test scores. Also in Turkey, Koksal and Berberoglu (2014) compared primary school students' performance in the learner-centred experimental group (162 students) and a more teacher-centred control group (142 students). Similar to the previously reported studies, they reported a significant difference in the treatment group in terms of achievement and science process skills.

Finally, the review contained two experimental studies with students in Malaysia. Karpudewan et al. (2015) compared the performance of 55 primary students in the learner-centred treatment group with 60 students in the teacher-centred control group, and reported that the treatment group outperformed the control group in terms of demonstrating knowledge on the topic. Ong and Ruthven (2010) observed 24 classes in two schools reported to be exhibiting characteristics of the LCP-related 'Smart school', compared to 24 classes observed in two schools not classified as 'Smart schools'. Although there appear to have been many similarities between schools defined as 'Smart' and those that were not, the authors argued that there were statistically significant differences between science process skills and general science attainment, with a larger effect size for students that were already performing better academically.

There were no texts that found limited or negative effects of LCP implementation on student achievement, and the possible reasons for and/or implications of this are examined in the Discussion section.

Two additional studies should be briefly mentioned before continuing: Croft (2002) in Tanzania and O'Sullivan (2004) in Namibia. These texts both reported some objective evidence of the effectiveness of their programmes. However, we did not include them as part of the 9 texts above because we did not classify the overall approach implemented to be 'learner-centred'. Indeed, in both cases, idealised forms of LCP were found to be unrealistic given the constraints found in each context, such as the lack of qualified teachers and adequate facilities. A considerably more teacher-centred approach was adopted instead, leading O'Sullivan to argue that a more appropriate term than 'learnER-centred' was 'learnING-centred'.

3.4. Non-objective perceptions of student progress

Having presented the somewhat limited 'objective' evidence of student progress as a result of LCP implementation, we now proceed to outline more subjective perspectives, of which there were many more examples. Indeed, 26 out of the 62 texts cited examples of teachers or students' perspectives of enhanced student learning, whilst 9 texts cited examples of little to no improvement in student learning.

3.4.1. Teachers' perceptions of student progress

There were 23 texts reporting teachers' perceptions of positive student progress. Several articles cited examples of teachers' general perceptions of students' learning (e.g., Niesz and Ryan, 2018 in India; Shraim and Khlaif, 2010 in Palestine; Taylor and Booth, 2015 in South Africa) and increased understanding (e.g., Ghebru and Ogunniyi, 2017 in South Africa; Voogt et al., 2009 and Roberts et al., 2015 in Tanzania). In South Africa, Zenda (2017) reported that a teacher had found that learner-centred group work had led to better performance than the previous lecture method (see also Bature and Atweh, 2020 in Nigeria and Di Biase, 2015 in the Maldives). In Nigeria, Thompson (2013) reported a teacher's view that learners had become more expressive under a more interactive approach, whilst in China, teachers in Sun and Gao (2019) expressed learners' increased self-directed learning abilities. In Rwanda, van de Kuilen et al. (2020, p. 9) reported that teachers felt that with LCP, 'students are more active and motivated' and thus 'expected that [LCP] will result in better learning outcomes'. In a few cases, perceived increases in learning were seen as conducive to students passing examinations. For example, in Kenya, Lattimer and Kelly (2013, p. 481) stated that teachers 'articulated the belief that OHP [Oral History Project] prepared students very well for the KCSE [Kenyan Certificate of Secondary Education] exams, with several participants indicating that these students were better prepared than students in the previous Form who had not had the opportunity to participate in a similar project.'.

A total of 5 texts cited examples of teachers' perceptions of limited or no progress as a result of LCP implementation. In Jamaica, Jennings (2012) found that most teachers did not feel that the learner-centred Research & Technology reform was able to develop children's problem-solving and critical thinking skills. In Turkey, Altinyelken (2011, p. 146) reported that 60% of teachers felt that students learnt less, given that 'the content load was reduced too much and the less time was spent on time-consuming classroom activities'. In Vietnam, Le (2018, p. 232) described how many teachers had 'expressed a sense of uncertainty about whether their students were really learning in the VNEN [Vietnam *Escuela Nueva*] classroom'. Indeed, one teacher expressed that whilst his students were 'definitely more confident and active in answering questions', they felt that 'students in the normal classroom still have a better grasp of the materials' (see also Tan, 2016 and Joong, 2012 in China).

3.4.2. Students' perceptions of their progress

A total of 11 articles cited examples of *students'* perceptions of their increased learning. Several texts made general claims that students felt they had learnt more, or improved their understanding, as a result of LCP implementation (e.g., Ozkan and Topsakal, 2020 in Turkey; Sifuna and Kaime, 2007 in Kenya; Shraim and Khlaif, 2010 in Palestine). In Tanzania, Msonde and Msonde (2019) cited examples in which students developed clearer understandings after the teacher had attempted to relate content to everyday life. In Nigeria, Bature and Atweh (2019) reported that students had found collaborating in groups had helped increase understanding, whilst in Kenya, Lattimer and Kelly (2013) reported that in addition to teachers, students also felt that the Oral History Project had better prepared them for their examinations.

We coded 3 texts with negative student perceptions, although all three presented individual exceptions as opposed to overall tendencies. For example, in Tanzania, some students in Voogt et al.'s (2009)) study felt they had learnt less from one particular teacher, although this may have been due to additional variables other than LCP. In Turkey, 1 out of 12 students in Coskun and Alkan (2010) reported that they could not provide answers to questions asked by the teacher, whilst in Ethiopia (Cianca, 2012, p. 410) 5 students out of 19 highlighted less positive experiences of the reading buddies program.

3.5. Non-cognitive outcomes

The previous sections have focused on 'student progress'; that is to say, students' academic learning outcomes. However, the review also found that there were other, non-cognitive outcomes as a result of LCP

implementation, with 23 examples of positive outcomes and 3 examples of negative outcomes. Out of the 23 positive outcomes, we broadly categorised them into two main areas: a) motivation and/or interest and b) confidence and/or self-efficacy. It is worth noting that, in a similar way to the texts reporting students' and teachers' general experiences of LCP, non-cognitive outcomes were reported based largely on small-scale, self-reported evidence, with a few exceptions (e.g., Cheng and Ding, 2020; Koksal and Berberoglu, 2014; Ozkan and Topsakal, 2020). We examine these potential methodological limitations further in the subsequent Discussion and Conclusion sections.

3.5.1. Motivation and/or interest

A total of 13 studies mentioned increased student motivation and/or interest in school and towards specific subjects. Several texts made general comments about students being more motivated (e.g., Akello et al., 2016 in Uganda; Cianca, 2012 in Ethiopia; van de Kuilen et al., 2020 in Rwanda). In Tanzania, Voogt et al. (2009, p. 434) cited an example of a teacher who felt that his students were highly motivated, stating: 'I have never seen something else moved my students the same way in physics'. In Uganda, Altinyelken (2010) reported that some teachers felt that an increase in student motivation had led to higher student attendance (see also Roberts et al., 2015 in Tanzania). In China, Cheng and Ding (2020, p. 180) compared 394 students in a more learner-centred experimental group with 368 students in a more teacher-centred control group, and found that motivation was significantly higher in the experimental group, concluding that 'learner-centered instruction was a significant predictor of intrinsic motivation'.

These increases in student motivation were sometimes linked to students' attitudes towards specific subjects. For example, in Nigeria, Bature and Atweh (2020, p. 328) reported how some students had experienced 'attitudinal changes towards mathematics as a subject', no longer viewing it as too difficult. Moreover, in Turkey, both Koksal and Berberoglu (2014) and Ozkan and Topsakal (2020) reported that LCP approaches had a statistically significant effect on students' positive attitudes towards science.

3.5.2. Confidence and/or self-efficacy

A total of 13 studies mentioned students' increased confidence and/self-efficacy as a result of LCP implementation. Several texts commented on students' increased confidence (e.g., Le, 2018 in Vietnam; Niesz and Ryan, 2018 in India; Altinyelken, 2011 in Turkey). In Uganda, Altinyelken (2010, p. 161) reported increases in 'self-esteem, assertiveness, confidence and effective communication', with teachers expressing that such skills were 'strengthened by the relatively more participatory nature of teaching and learning'. Similar findings were reported by Roberts et al. (2015, p. 12) in Tanzania, with one teacher describing how students were 'more confident in classroom activities […] less afraid now and have developed self-esteem'.

The newfound confidence instilled in some students indicated somewhat of a change in traditional roles, an area we also discuss in the next section on student-teacher relationships. For example, in Iraqi Kurdistan, Burner et al. (2017, p. 412) described how students were taking increased 'risks' in the classroom, beginning to ask, discuss and answer questions without fear of being wrong. Similarly, in Palestine, Al-Ramahi and Davies (2002) reported that students were no longer scared to speak to their teachers, with one teacher expressing that 'pupils' personalities become stronger and they become more free to speak and to express their opinions and feelings'.

In Kenya, Lattimer and Kelly (2013, p. 479) argued that the learner-centred Oral History Project had 'resulted in a significant impact on both teacher and students' conceptualization of learning and teaching, perceptions of community knowledge, and sense of self-efficacy'. The notion that some applications of LCP may end of having 'emancipatory' purposes was also highlighted by Stears (2009, p. 405) in South Africa, who argued that learners were able to 'take ownership of knowledge', increasing their self-esteem and dignity.

A total of 3 texts were coded in terms of negative psycho-emotional outcomes. In Jamaica, Jennings (2012, p. 267) argued that the Research & Technology reform 'does not enable the students to gain confidence and skills to enhance the natural enterprise of the Jamaican people'. In Palestine, Shraim and Khlaif (2010) found that only 33% of respondents agreed that the LCP-related e-learning initiative led to increased student autonomy. Finally, in Armenia, Hovhannisyan and Sahlberg (2010) reported that only 27% of teachers felt that students had become more responsible after participating in a cooperative learning reform.

3.6. Changes in relationships

Another major outcome of LCP implementation was changes to relationships between teachers and students, cited in 27 out of the 62 texts. Within these 27 texts, 25 reported positive changes in relationships, whilst 4 cited limited to no change, or negative changes in relationships. There were two main sub-categories of relationships: student–teacher relationships and student–student relationships.

3.6.1. Student-teacher relationships

16 texts cited examples of improved student–teacher relationships as an outcome of LCP implementation (e.g., Akello et al., 2016 in Uganda; Allen et al., 2018 in Indonesia; Khoboli and O'Toole, 2011 in Lesotho). Teachers utilised a variety of metaphors to describe changes in their roles, for example 'knowledge givers to knowledge facilitators' (Lattimer and Kelly, 2013 in Kenya, p. 480), or moving 'from the stage to the backstage' (Sun and Gao, 2019, p. 13 in China). Some authors described a more 'friendly' relationship (e.g., Sifuna and Kaime, 2007, p. 116 in Kenya); indeed, van de Kuilen et al. (2020, p. 12) reported how one Rwandan teacher described a change in his role from 'king' to 'friend':

> Before I was like a king. I come there in front of them, I present. My job was only to deliver information. There was no friendship. But now, when I meet them outside, they are my friends. And I am their friend. Now they don't fear a teacher (Emmanuel, male, secondary, school 6)

Several authors described a relationship that was less formal (e.g. Al-Ramahi and Davies, 2002 in Palestine), more open and trusting (e.g., Bature and Atweh, 2019 in Nigeria) with less fear on the part of the students (e.g., Burner et al., 2017 in Iraqi Kurdistan). Similarly, Altinyelken (2015, p. 491) in Turkey reported how teachers found students were tending 'to challenge more, or directly oppose, teachers compared to the previous generations' and that such changes in role were having a 'democratising effect in the classroom, since they weakened the power of teachers in controlling learning processes, and conversely promoted students' authority and voice in what should be learnt, how and when'.

Two texts were classified as mentioning limited changes, or no changes, in student–teacher relationships. In East Timor, Shah and Quinn (2016, pp. 10–11) argued that 'LCP was being appropriated and adapted into tightly framed and regulated discourses, where underlying patterns of teacher–student interaction and modalities of learning remained markedly similar to past practices'. Finally, although overall reporting positive changes to student–teacher relationships, Bature and Atweh (2019) in Nigeria described strict regulations against male to female relationships as continuing obstacles to effective collaboration.

3.6.2. Student-student relationships

13 texts mentioned enhanced student–student relationships as a result of LCP implementation (e.g., Akello et al., 2016 in Uganda; Cianca, 2012 in Ethiopia; Msonde and Msonde, 2019 in Tanzania). For example, certain texts described how some learners had discovered that they could learn from each other (e.g., Bature and Atweh, 2019 in Nigeria; Stears, 2009 and Taylor & Booth in South Africa). In Indonesia, Wahyudi and Treagust (2004, p. 468) contrasted students' experiences of one 'exemplary' (more learner-centred) teacher to 'non-exemplary' (more teacher-centred) teachers. The authors reported that the

'exemplary' teacher's classroom 'experienced better student–student relationships […] as well as more cooperation with class members' compared to the other teachers. In Uganda, Altinyelken (2010, p. 161) found that teachers perceived that LCP had 'improved interaction levels among students; hence their skills in forming friendships and maintaining good interpersonal relationships also developed'. To a certain extent this was also evident in Burner et al.'s (2017, p. 413) description of LCP implementation in Iraqi Kurdistan, suggesting that '[i]mplementation of SCL [student-centred learning] increased collaboration also between boys and girls', which was not particularly common in this context.

Two texts were coded as having a limited or negative effect on student–student relationships, although these were very isolated examples. In Botswana, Mungoo and Moorad (2015) described how some students had negative experiences from working in groups, whilst in Indonesia, Wahyudi and Treagust (2004) reported one instance of a boy annoying a girl during group work.

4. Discussion

The previous section outlined a range of different outcomes of LCP implementation. In this section we discuss what we consider to be the most important findings emerging from the review.

4.1. Limited objective evidence of LCP effectiveness

The first key point to highlight is that the objective, externally measured evidence of LCP implementation is rather thin, with only 9 out of the 62 studies reporting what we considered 'objective' evidence (with 6 of these from science teaching). This is not to dismiss more subjective evidence (such as teachers' or students' views), but it is certainly noteworthy that so many contexts have introduced LCP-related changes without there being a significant body of evidence to demonstrate that LCP is more effective than what teachers have been doing previously.

Several reasons might be proposed for such a lack of evidence. From a methodological perspective, it is difficult for studies to prove that certain teaching approaches are more effective than others due to the large numbers of variables involved. Researchers may seek to increase the potential validity of experimental studies by increasing sample sizes; however, this implies a much higher investment of time and resources, which understandably may not always be available, especially in low- to middle-income countries. Moreover, it is possible that similar studies aiming to prove the effectiveness of different teaching approaches may have been conducted, but do not appear in this review as they did not technically fulfil our selection criteria (in fact, one might argue that this is a key limitation of systematic review in general). For example, Ong and Ruthven (2010) provided references in the Discussion section of their paper which supported their findings; however, none of these references met our inclusion criteria.

It is noteworthy that the 9 studies that provided objective evidence all reported positive outcomes of LCP implementation. On one hand, this may indicate that LCP is having a positive impact in the limited studies provided. On the other hand, such findings may raise doubts as to whether further studies were carried out but not reported because they yielded negative or mixed results. We have no data as to whether this is true or not, but it is certainly a possibility, given the pressures that academics are under to 'contribute to knowledge' and the commonly cited phenomenon that academic journals are more likely to publish findings if they are positive (Dickersin, 2005). Additionally, researchers with an interest in LCP are presumably more likely to research on it; there may therefore be implicit biases when they carry out studies and report findings (Crossley and Watson, 2003). This may relate, in some way, to what Guthrie (2021) referred to when he accused many researchers on LCP to be guilty of 'cognitive dissonance' (p. 9) (i.e. continuing to express a positive view of LCP despite a lack of evidence). Participants, also, may have felt under implicit pressure to react positively to new approaches in order to meet expectations of them (to 'please' the teacher or researcher, a phenomenon known as participant or response bias; see Smith and Noble, 2014).

The specific methodological characteristics of the 'objective' studies also contribute to the idea of a limited base of evidence of LCP effectiveness. Out of the 9 objective studies, 3 were limited in the sense that they reported objective 'gains' for students without any comparison group (Akello et al., 2016; Ismail and Alexander, 2005; Msonde and Msonde, 2017, 2018). In these studies, it is more difficult to take value from the findings as we do not know how much the students would have learnt anyway under previous approaches. The other 6 experimental studies were somewhat more valid, given that they provided a comparison group. However, they also drew their conclusions from relatively small sample sizes. In certain cases, it was difficult to isolate variables; for example Koksal and Berberoglu (2014) attempted to compare LCP to teacher-centred approaches, but did so by collecting data from different teachers and students in different schools. Overall, we would have to conclude that the objective evidence that LCP-related approaches are more effective than previous teacher-centred approaches is provisional at best, and that a wider range of larger scale, rigorous research is needed to provide convincing evidence of LCP effectiveness.

4.2. More frequent non-objective evidence of LCP effectiveness

Given the relative lack of objective evidence of LCP implementation, we must turn to smaller-scale studies reporting non-objective evidence, such as research reporting teacher and student perspectives. There is clearly a certain degree of value in these kinds of studies, as they provide more detail and often explanatory value to positive or negative findings. They are also considerably easier to conduct from a methodological perspective, although it must be recognised that the previous potential problems when reporting objective research may also be applied to non-objective research. For example, there may again be implicit biases in terms of who decides to research LCP, what research is deemed of publishable value, and the pressures participants may feel under to express findings in a way that match the perceived expectations of the researcher.

The non-objective evidence collated in this review leaned toward positive perceptions from both teachers and students, with 26 texts providing examples of positive perceptions of student progress and 9 texts providing examples of negative perceptions. It was not only in the area of students' academic progress that positive perceptions were reported: additional outcomes such as increased motivation and confidence, as well as positive changes in student relationships, were also reported in a large number of studies. LCP has sometimes been described, in both advocacy and criticism, as a policy 'panacea' (i.e. a solution to all problems; Sriprakash, 2010). The findings of this review would indicate that there may be many additional outcomes to LCP implementation other than simply students' academic performance. In fact, many might argue that more research, and indeed policy emphasis, should be placed on these outcomes.

4.3. A gradual transition to more positive dispositions towards LCP?

There were many reports of teachers and students generally having positive experiences of LCP implementation. Although these experiences are inevitably self-reported, subjective, and possibly prone to participant bias (given that LCP has been widely promoted and participants may have felt implicit pressures to provide expected positive responses), they may begin to suggest that teachers and students may start to form positive beliefs in the value of LCP approaches, which may eventually translate into increased willingness to implement future LCP reforms. As indicated in much of the literature on educational change (e.g. Wedell, 2009; Fullan, 2015), teachers beginning to believe in the value of new educational approaches is important in order for them to convert these

beliefs into practice. Such changes tend to take place gradually, as teachers experiment with new approaches, evaluate their effectiveness, and become more experienced over time.

However, it was noteworthy that very few texts considered LCP implementation over time. This is understandable to a certain extent, as such studies take considerable time and resources to be carried out. Our review found that only Altinyelken (2011, 2015 in Turkey) explicitly and extensively discussed positive and negative outcomes of LCP implementation at a wider societal level and over time. Altinyelken argued that children who are encouraged to raise questions have become more critical about what adults say, which might contribute to strengthen the democratic system in Turkey. At the same time, the fact that LCP implemented in the studied context required computer technology and appropriate resources and materials, resulting in a widened gap between those who have technology and those who do not. Compared to Altinyelken's texts, the changes in teacher–student and student–student relationships as well as beliefs indicated by several studies (e.g., Burner et al. 2017; Lattimer and Kelly, 2013; Stears, 2009) might eventually lead to changes at a wider society level over time, but such elements were not discussed explicitly in most texts. Future studies, either longitudinal or retrospective in nature, that incorporate the time element would be most useful.

5. Conclusion and recommendations for future study

This article summarised the findings of a systematic review of literature examining the potential outcomes of LCP implementation. A variety of positive and negative outcomes were identified in the review, ranging from classroom experiences, perceptions, academic outcomes, psycho-emotional outcomes and human relationships. Arguably the most noteworthy finding of the review was that there continues to be relatively little 'objective' evidence of LCP effectiveness, which largely agrees with the findings of Guthrie (2021). Larger scale experimental studies may be challenging from a methodological perspective and are likely to imply a large investment in time and resources. However, on the basis of current evidence, there is a real gap in hard data to prove or disprove the value of LCP, especially given its continued prominence in worldwide policy discourses (UNESCO, 2021).

The more subjective research, for example studies presenting perspectives of teachers and students, was more prevalent than objective research, and did seem to lean towards positive experiences of LCP. This research often pointed towards students' non-academic outcomes, such as positive impacts on student motivation and confidence, as well as enhanced relationships. Such outcomes may not always be the priority for educational policymakers, but many would argue they are extremely important. Although such non-academic outcomes were mentioned relatively frequently in the texts we reviewed, more objective evidence or links between LCP implementation and such non-cognitive outcomes would be welcome in future research.

Finally, there were many examples of students and teachers reporting general positive experiences of LCP, which despite their inherently self-reported nature, may indicate a transition towards them beginning to believe in such approaches. As previous research suggests, such belief changes tend not to occur quickly (Wedell, 2009; Fullan, 2015), and more research exploring some of the longer-term experiences of stakeholders as they implement LCP over a number of years would be another welcome addition to the literature.

There were certain limitations of this systematic review which could be addressed in future reviews. The scope was limited to primary and secondary level education, and reviews including pre-school, higher or further education would complement this review's findings. Moreover, the review focused only on low- to middle-income countries, and reviews including high-income countries would be a useful comparison. The review focused on academic journal articles, and therefore other kinds of texts including 'grey literature' might have contributed to the findings, albeit such texts may not have gone through extensive peer review. In addition, by its very nature, a systematic review may exclude certain relevant texts that do not technically fit its inclusion criteria. In the case of LCP implementation, expanding the scope of the keywords of the study to include individual aspects of LCP (e.g., 'active learning', 'problem-based learning') could potentially increase the evidence base, even if the words 'learner-centred' or similar are not explicitly mentioned. Finally, given the limited number of studies that utilised objectively measured evidence, our review necessarily relied on a considerable body of self-reported, subjective data. This might indicate a weakness of our overall summary, for which we would again stress the need for an increased number of larger-scale, objective studies be conducted in the future.

A final inherent limitation of systematic reviews is that, by attempting to synthesise the findings of individual studies, they may be seen to provide somewhat over-simplified and perhaps superficial findings of the 'overall picture'. By definition, our exhaustive approach to text coverage, in which all texts that met our criteria were analysed, meant that we would inevitably lose a great deal of the contextual detail and complexity that is found in individual case studies. After all, the implementation of LCP largely depends on sociocultural factors – such as how people relate to each other, what is considered 'appropriate' in the relationships and how they view knowledge (Schweisfurth, 2011) – and it is important that we do not underestimate these factors when discussing LCP implementation in low- and middle- income countries. Moving forward, a balance will need to be struck between exploring the nuances of LCP implementation and outcomes, and reaching more 'global' conclusions about the impacts LCP may have on learners and learning.

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Appendix 1. Full search terms

LCP-related synonyms included in title and/or abstract

('learner-centred' OR 'learner-centered' OR 'learner-centredness' OR 'learner-centeredness' OR 'student-centred' OR 'student-centered' OR 'student-centredness' OR 'student-centeredness' OR 'child-centred' OR 'child-centered' OR 'child-centredness' OR 'child-centeredness' OR 'learner centred' OR 'learner centered' OR 'learner centredness' OR 'learner centeredness' OR 'student centred' OR 'student centered' OR 'student centredness' OR 'student centeredness' OR 'child centered' OR 'child centredness' OR 'child centeredness')

Country names included in title and/or abstract

(*continued on next page*)

(*continued*)

(Afghan OR Algerian OR Angolan OR Bangladeshi OR Beninese OR Bhutanese OR Bolivian OR Burkinabe OR Burundian OR 'Cape Verdean' OR Cambodian OR Kampuchean OR Cameroonian OR Chadian OR Congolese OR Zairean OR Djiboutian OR Egyptian OR Eritrean OR Ethiopian OR Gambian OR Ghanaian OR Guinean OR Haitian OR Honduran OR Indian OR Kenyan OR 'North Korean' OR Kyrgyz OR Liberian OR Malagasy OR Malawian OR Malian OR Mauritanian OR Micronesian OR Moldovan OR Mongolian OR Moroccan OR Mozambican OR Burmese OR Nepalese OR Nicaraguan OR Nigerian OR Pakistani OR 'Papua New Guinean' OR Pilipino OR Rwandan OR Senegalese OR 'Sierra Leonean' OR Somalian OR 'Sri Lankan' OR Sudanese OR Syrian OR Tajik OR Tadjik OR Tadzhik OR Tanzanian OR Timorese OR Togolese OR Tunisian OR Ugandan OR Ukrainian OR Uzbek OR Vanuatuan OR Vietnamese OR Gazan OR Yemeni OR Yemenite OR Zambian OR Zimbabwean OR Rhodesian OR Zanzibari OR Albanian OR Samoan OR Antiguan OR Argentine OR Argentinian OR Azerbaijani OR Belarusian OR Belizean OR Bosnian OR Herzegovinan OR Hercegovinan OR Botswanan OR Brazilian OR Bulgarian OR Chinese OR Colombian OR 'Costa Rican' OR Cuban OR Dominican OR 'Equatorial Guinean' OR Ecuadorean OR Salvadorian OR Fijian OR Gabonese OR Georgian OR Grenadian OR Guatemalan OR Guyanese OR Guinean OR Indonesian OR Iranian OR Iraqi OR Jamaican OR Jordanian OR Kosovan OR Lebanese OR Libyan OR Macedonian OR Malaysian OR Maldivian OR Mexica OR Montenegran OR Namibian OR Palestinian OR Paraguayan OR Peruvian OR Russian OR Samoan OR Serbian OR Montenegran OR 'South African' OR 'St. Lucian' OR 'St Lucian' OR Surinamese OR Swazi OR Thai OR Tongan OR Turkish OR Tuvaluan OR Venezuelan OR Yugoslavian OR Melanesian OR Bengali)

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Texts preceded by an asterix (*) formed part of the review.

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