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Understanding Teacher Reactions to Curriculum Reforms: A Comprehensive Typology

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Abstract

Learner-centred curriculum reforms in 'developing' countries have a long classroom history of nonimplementation. The need is to better understand teachers' perspectives on such reforms. A Typology of Teacher Reactions to Curriculum Reforms provides a nuanced framework to interpret teachers' knowledge, attitudes and behaviour. Divided into three domains and seven categories, the typology encompasses the Cognitive Domain (ranging from Lack of Awareness to Recognition to Understanding), the Affective Domain (Espoused Belief and Actual Belief), and the Behavioral Domain (Surface Practice and Deep Practice). The evidence from wide-ranging school effectiveness and classroom improvement literature reviews that illustrate the Typology is that, typically, interview and questionnaire studies find teachers in primary and secondary schools are aware of learner-centred curriculum policies mandated at higher levels, can articulate knowledge about them, and express positive attitudes. However, triangulation with classroom observation commonly shows traditional pedagogy continues. Any adoption is of surface features consistent with teacher-centred knowledge transmission rather than student-centred knowledge construction. While espoused support can be professionally expedient for teachers, non-adoption as theories-in-use can be a reasoned response to curricula that offer no relative advantage, are complex, incompatible with existing methods, and offer no observable outcomes for clients. Rather than introducing culturally-inappropriate curriculum reforms, a more constructive approach to improving teaching effectiveness is to identify and 'reverse engineer' successful classroom methods that are consistent with teachers' understandings of pedagogy and epistemology.

Index terms— curriculum, formalism, learner-centred pedagogy, progressivism, teacher-centred pedagogy, teaching styles.

1 Introduction

between stated beliefs and classroom practice leads to varying interpretations in the comparative education literature. Studies often include optimistic assumptions that teachers' knowledge of and seemingly positive opinions about progressive curriculum reforms indicate that implementation is on a path to classroom success. This article provides a Typology of Teacher Reactions to Curriculum Reforms intended to help interpretation of research findings by distinguishing between teacher knowledge, attitudes and behaviour in relation to curriculum reforms.

Terminology: The terminology for LCP has been criticized strongly as wide and ill-defined (Abadzi 2006; Bremner 2021; Guthrie 2021). Here, LCP is a general term for a variety of labels based on a foundation of knowledge construction epistemology. Various labels in the research literature include 'action learning', 'active learning', 'child-centred', 'competency-based', 'constructivist', 'cooperative', 'democratic', 'discovery', 'enquiry', 'learner-centred', 'learning-centred', 'liberal', 'outcomes-based', 'participative', 'problem solving', 'progressive', and 'student-centred'. Similarly, TCP refers to various labels founded on epistemology involving given knowledge,

43 including 'didactic', 'direct instruction', 'expository', 'instructivist', 'knowledge transmission', 'performance
44 mode', 'traditional', and 'whole class' pedagogy.

45 Evidence: The evidence from wide-ranging school effectiveness and classroom improvement literature reviews
46 that will illustrate the Typology is that, typically, interview and questionnaire studies find teachers in primary
47 and secondary schools in developing countries are aware of LCP curriculum policies mandated at higher levels,
48 can articulate knowledge about them, and express positive attitudes. However, triangulation with classroom
49 observation commonly shows TCP continues. While some teachers in developing countries do add surface student-
50 centred techniques to their knowledge transmission classroom practice, examples of teachers who incorporate
51 deeper elements of knowledge construction epistemology in their lessons are extremely rare in the classroom
52 research literature. Even rarer are any cases of sustained implementation or wider diffusion in schools.

53 Consolidation of such evidence occurred in a variety of quantitative and qualitative analyses of the research
54 literature during the 2010s (Glewwe et al. 2011; why do learner-centred curriculum reforms in 'developing'
55 countries have a long history of non-implementation in the classroom? In topdown educational systems in such
56 countries, considerable worldwide curriculum reform efforts encompassing Learner-Centred Pedagogy (LCP) date
57 back decades. Teachers in primary and secondary schools often claim support for progressive, studentcentred,
58 knowledge construction curricula mandated at higher-levels; however, they overwhelmingly continue to use
59 formalistic Teacher-Centred Pedagogy (TCP) with knowledge transmission methods that build on memorization
60 of given knowledge. The contradiction (??020) reviewed 27 articles with research findings on the implementation
61 in 11 countries in Sub-Saharan Africa of competency-based curricula with LCP in science subjects. The studies
62 showed that the curricula (which the authors supported) were still implemented in traditional ways. Most
63 teachers continued to rely on lectures and chalk-and-talk promoting memorization. An unchallenged statement
64 in a qualitative review of 72 studies spanning 20 years and 39 countries, by a supporter of LCP on human rights
65 grounds, was that the literature was 'riddled with stories of failures grand and small' (Schweisfurth 2011: 425).

66 Adoption of Innovation: An interpretation in the present article, based on Simon's (1963, 2003) sociological
67 analysis of adoption of innovation, is that teachers' reluctance to maintain progressive reforms as routine classroom
68 behaviour can be rational decision-making that is not just conservative resistance to change. Nonimplementation
69 of top-down curricula prevalent in international policy discourse can be embedded in teachers' authentic cultural
70 constructs, consistent with (Hernberg's (2007: 5) definition of culture as the set of attitudes, values, beliefs,
71 and behaviours shared by groups and communicated from generation to generation. Building on culturally
72 intuitive pedagogy, 'reverse engineering' can focus on working bottom-up to improve the effectiveness of existing
73 TCP paradigms rather than requiring paradigm shift to LCP. Thus the Typology does not necessarily lead to
74 identifying how to improve teachers' knowledge of LCP and change their attitudes to it with the aim of persuading
75 them to shift paradigms to LCP. Rather, the Typology can also direct attention to treating TCP as authentic
76 and encouraging teachers to improve it.

77 Scope: This article briefly outlines the history of progressive curriculum reforms in developing countries.
78 Section III then discusses cultural constructs and the differences between espoused beliefs and actual behaviour
79 and why teacher non-adoption can be a rational response to inappropriate reforms. The Typology that follows
80 in a long Section IV is intended to help resolve interpretation of teacher beliefs and behaviour. While objective
81 conditions do inhibit implementation of LCP, lack of clarity about deeper cultural issues can contribute to
82 confirmation bias in the research, to which some methodological limitations contribute (Sections V & VI). Finally,
83 Section VII outlines a research design for reverse engineering successful classroom methods as a basis for improving
84 teacher performance.

85 2 II. Curriculum Reforms in Developing Countries

86 During the decades of decolonization that followed World War II, an entrenched belief among international
87 academics and policy-makers was that investment in education was the most important factor in national
88 development (Hawkins 2007). The following synthesis draws on a considerable body of literature from the
89 comparative education field to identify some broad patterns that occurred in developing country education
90 systems during the rest of the century. This literature includes (Rossley (1984a; 2019) on policy transfer;
91 Guthrie (1986) on curriculum reform impacts; Tabulawa (2003; 2013) on internationally-influenced pedagogical
92 reforms in Africa; Barrett et al. (2006) on international influences on 'quality'; Riddell & Nino-Zarazua (2016)
93 on the effectiveness of foreign aid; Reagan (2018) on non-Western educational traditions; and Tikly (2020) on
94 post-colonial Africa.

95 Emergence of Learner-Centred Approaches: Various from the 1970s, and mainly in former British colonies,
96 textbooks and syllabuses often showed neo-colonial soft power influences when they targeted traditional TCP,
97 which was often perceived as authoritarian (Harber In the early post-colonial years, especially during the 1950s
98 through to the 1970s, national governments usually focussed on expansion of primary schooling and provision of
99 basic equipment and materials as reflected in the goal of Universal Primary Education (Bray 1981). Evolutionary
100 curriculum reforms began around independence in countries such as Ghana in the late 1950s (Zimmerman 2011)
101 and Papua New Guinea in the 1960s (Guthrie 2014), often starting with changes to syllabus content to make
102 subjects such as history and geography more relevant. Expansion of schooling and subject content changes
103 were often supported by international aid projects that included institution strengthening components such as
104 printshops for textbook production (Heyneman et al. 1978). The associated curriculum development, textbook

105 and pre-and in-service teacher education activities became vehicles through which international staff, consultants,
106 advisers and their counterparts (often including overseas-educated citizens) projected student-centred changes to
107 traditional teacher-centred styles.

108 **3 Early Development Efforts:**

109 The pre-colonial starting point was the many cultural traditions across the world. During the colonial era,
110 curricula were transferred from the imperial countries, mainly to provide for the children of colonial elites.
111 Colonial rule and direct policy transfer variously ended around the 1820s in South America, the 1940s-1970s
112 across Asia and Africa, and in the early 1990s in the former Soviet Bloc in Central Asia. However, neo-colonial
113 influences have long continued.

114 The many strands in LCP essentially derive from Anglo-American educational philosophy that embodies
115 individualistic values different from the collectivism and communalism usual in developing countries (Alexander
116 2000). By the early 1980s, progressivism was central to international policy thinking about education in
117 developing countries (Lockheed & Verspoor 1991 ??016). One effect was that developing countries sometimes
118 adopted foreign pedagogies simply because they were widely promoted as best practice. One case was Rwanda,
119 where LCP policies were adopted in a policy environment where foreign aid agencies, African regional agencies
120 and the Rwandan government all had an unquestioned belief that LCP was world best practice (van de Kuilen
121 et al. 2019). Not uncommonly, part of the motivation for developing countries to adopt such policies was to
122 facilitate aid funding. However, as a literature review by Nguyen et al. (2009) of cooperative learning across
123 Asia identified, a complex web of cultural conflicts and mismatches could occur with traditional teaching styles.
124 Educational policymakers in non-Western countries, they wrote, were often prone to cherry-pick Western practices
125 and neglect detailed consideration of differences in cultural heritage. The risk, as Dar (2021: 311) aptly put it,
126 is of 'pedagogy for its own sake'.

127 **4 Extent of Curriculum Policy Adoption:**

128 Although curriculum policies encompassing LCP became widespread in developing countries, they were not
129 universal among them. An estimate was that official policy adoption occurred in some 68% of 142 countries
130 (Guthrie 2021). Adoption occurred especially in Confucian Asia, Latin America, the Indo-Pacific, and in
131 'Anglophone' parts of Sub-Saharan Africa. Conversely, progressive policies were not adopted in an estimated 32%
132 of the countries: notably in Southwest Asia and northern parts of Africa with strong Islamic and 'Francophone'
133 influences as well as countries affected by conflict and/or poverty. Post-colonial Mali illustrates interaction
134 among these elements (Diarra 2015; Boyle 2019). After independence in 1960, local French schools became the
135 basis of the public school system but parental preference led to increasing numbers of Arabic schools. Increased
136 access to schooling from the 1990s was still accompanied by teacher shortages, low standards and major social
137 disparities with no indication that LCP curricula were adopted. progressive educational theory that disparaged
138 the memorization associated with knowledge transmission (Abadzi 2006). Departmental policies typically aimed
139 to improve education quality, address local needs and align with national development goals. Such changes
140 had limited and uneven effects that were highly dependent on context. Any initial successes often occurred
141 in well-funded and staffed pilot projects (Crossley 1984b). Additionally, some governments, such as in South
142 Africa in 1998 after the end of apartheid, borrowed Outcomes-Based Education in the political belief that they
143 could transform society (Jansen & Taylor 2003). Progressive policy borrowings were uncommon in former French
144 colonies and Islamic countries, however.

145 2002). Changes to official curricula could also borrow Some adopter countries took a nation-wide political
146 approach to progressive curriculum and classroom policies, as with the Curriculum 2005 in South Africa (Hoadley
147 2017). Whether or not broader political direction occurred, education policy-makers could officially adopt LCP
148 curricula, for example in Turkey, where they were influenced by potential harmonization with the European Union
149 (Altinyelken & Sozeri 2018). Whether or not official policies existed, individual teacher education institutions
150 might adopt progressive methods, e.g., a teachers' college in Tanzania (Vavrus 2009). Contracted aid project
151 managers could strongly influence the introduction of progressive approaches as in an Australian curriculum
152 reform project in Papua New Guinea (Guthrie 2012). Non-government organizations could also be very active,
153 such as the Soros Foundation in Central Asia in the 1990s (Silova & Steiner-Khamsi 2008). Despite all such
154 efforts, the outcome of the curriculum reforms was failure to generate sustained classroom adoption of deep
155 progressive practices, i.e., of paradigm shift from TCP to LCP. Policy is one thing; implementation is a different
156 matter.

157 **5 III.**

158 **6 Cultural Complexities**

159 Where direct classroom observation occurs in developing countries, the overwhelming evidence in the analyses
160 of the research literature cited in the Introduction and in the examples in Typology Category 4 below is that
161 progressive curriculum reforms have not achieved fundamental, systematic, widespread or longlasting changes in
162 teachers' classroom behaviour despite plentiful examples of teachers who expressed positive attitudes.

7 IV. TYPOLOGY OF TEACHER REACTIONS TO CURRICULUM REFORMS

163 Cultural Constructs: Why is LCP not implemented in classroom practice? As discussed in Section V below,
164 many objective classroom, school and system constraints inhibit implementation. However, a more fundamental
165 explanation goes to teachers' deep-rooted cultural constructs, which can undercut system-level change agents who
166 assume incorrectly that teachers will passively implement inappropriate reforms in the classroom even if facilities
167 are suitable. Rogers' (2003) influential sociological analysis of the adoption of innovation, first published in 1962,
168 provides a coherent explanation. Rogers delineated five distinct attributes of innovations that are weighed up by
169 potential adopters in an organization: relative advantage (the degree to which innovations offer advantages over
170 other innovations or present circumstance); compatibility (the extent to which innovations align with prevalent
171 values, previous experiences or ideas, and the needs of clients in the social system); complexity (the extent to
172 which innovations are considered difficult to learn and apply); trialability (the degree to which innovations can
173 be tried on a small scale); and observability (the degree to which outcomes from adoption are visible to clients).
174 The effect is that classroom changes are more likely to be adopted as long-term practice if they fit teachers'
175 constructs and are successful in their own terms.

176 Consistent with such analysis, a study of attempted curriculum change in Hong Kong did not treat formalistic
177 teachers as resisters of change (Morris 1985). Rather, teachers weighed innovations according to classroom
178 practicality, fit with existing conditions and professional costs. Teachers' decisions not to use LCP were rational
179 choices between alternatives in a society where people regarded exams and their selection functions as normal.
180 Exams gave purpose and a framework for TCP in a social and economic context of very unequal distribution of
181 income where exam success was crucial to pupils' life chances. Teachers perceived LCP as inefficient for achieving
182 such important ends. Conversely, an example from Malawi indicated that formalistic teachers could adopt changes
183 compatible with existing methods. Gwayi (2009) used Rogers' attributes to investigate implementation of an
184 innovation that required teachers to use locally-sourced materials but did not otherwise attempt to change
185 TCP. Significant correlations occurred between reported implementation and perceived relative advantage,
186 compatibility with prior experience, ease of use, communicability, measurability, trialability, and professional
187 image.

188 Espoused Beliefs and Theories-in-Use: In top-down educational systems in developing countries, teachers
189 often claim support for progressive curricula decreed at higher levels. However, they rarely change deeper
190 aspects of their classroom practice. A relevant distinction that shapes the Typology is between two types
191 of mental construct. Espoused beliefs are defined as those we state when asked; theories-in-use are deeper
192 beliefs and opinions governing our actual behaviour (Argyris & Schon 1974; Borg 2018). Based in management
193 theory, the approach considers that the effectiveness of an organization depends on how well the actual behavior
194 of its members aligns with the organization's stated goals and values. However, there can be a disconnect
195 between members' stated beliefs and actual practices. Typology Category 4 (below) refers to studies from 35
196 countries that showed teachers in interviews stating conformity with organizational goals (i.e., official curriculum
197 policies on LCP) but triangulation with classroom observation found the same people actually used TCP. An
198 illustration relevant to LCP comes from a mixed methods study in Pakistan. Hashmi et al. (2023) sampled
199 170 elementary teachers. In questionnaires, teachers espoused positive beliefs about providing timely, significant,
200 relevant feedback to students to improve their learning. However, triangulation using oral and written checklists
201 found the teachers' actual feedback practices -their theories-in-use -were either non-existent or nominal.

202 Why the disconnects between espoused beliefs supporting LCP and TCP as theory-in-action? One
203 interpretation involves research methodology. Participants in research studies can be prone to state the views
204 that they think researchers want or are politic to express (Guthrie 2011: 90-2). Espoused beliefs commonly are
205 identified from questionnaires, interviews and focus groups. These can provide valid data about teacher's attitudes
206 and cultural constructs but they provide only proxy, second-hand measures of classroom behaviour. Teachers
207 can espouse pictures of their classrooms to researchers that are more consistent with reform ideologies than their
208 real classroom behaviours. While researchers routinely and genuinely state that answers in questionnaires and
209 interviews are confidential, this may carry little weight with respondents. Teachers may repeat progressive jargon
210 and report that they conform with policy from fear of negative feedback to headteachers and inspectors. Focus
211 groups can add to such pressures, especially when groups contain members in positions of authority. Teachers
212 may perceive the role of the educational researcher as embodying a power relationship that could operate to their
213 disadvantage, particularly when the research is evaluating official policies. Scientific values about truth can be
214 less important than social status and authority, especially in communal and collective cultures.

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216 How can contradictions in evidence about teachers' knowledge, attitudes and actual practice be identified?
217 Apparent in the extensive literature searches for Guthrie (2021) was that classroom studies in the comparative
218 education literature usually focussed more on the educational substance in theories behind LCP reforms (such as
219 those of Bernstein and Vygotsky) than on theories about adoption of innovation by sociologists and management
220 theorists (such as Rogers and Argyris & Schon) that inform the Typology of Teacher Reactions to Curriculum
221 Reforms in Figure 1. The Typology provides a system of classification to assist interpretation of findings in the
222 classroom literature on LCP in developing countries. The Typology's categories derive from the three domains in
223 the standard educational classification in Bloom's Revised Research Applications: Understanding of the interplay
224 between teachers' knowledge, attitudes and behavior is crucial for interpreting research findings on LCP reforms.

225 The disconnects that are possible (indeed prevalent) between teachers espoused attitudes and their theories-in-use
226 indicate the need for caution about interpreting espoused attitudes towards LCP as indications that reforms are
227 on a path to successful adoption.

228 As the categories move from left to right in Figure 1, the underlying dimension is likelihood that reforms will
229 be implemented. Application of the Typology in a research study that identifies successful implementation of an
230 LCP curriculum would necessarily find adopters who have knowledge of the reform, espouse positive attitudes,
231 are committed to it as a theory-in-use, and implement both surface and deep elements (i.e., fit all the categories
232 2-7). However, the examples that illustrate the Typology indicate alternative scenarios. The research might also
233 find formalistic teachers who understand a reform and espouse positive beliefs but retain TCP as the actual belief
234 guiding their deep classroom practice as knowledge transmitters although they implement surface aspects of LCP
235 because of higher-level pressures. These teachers fit categories 2, 3, 4 and 6 but not 5 and 7 because of disconnects
236 between their espoused beliefs and theories-in-use. The research might also identify teachers who do articulate
237 negative attitudes but nonetheless implement surface aspects of LCP to conform with organizational directions
238 (i.e., they fit categories 2, 3 and 6 but not 4, 5 and 7). The examples that illustrate the Typology indicate
239 that the likelihood of deep practice of LCP can be very low. countries were identified through eight international
240 indexes, further delimited by three search terms from among the many labels for LCP. The search identified 461
241 classroom related articles which were filtered for methodological rigour to provide 94 texts then systematically
242 classified by several variables. The types of comparative education research identified in both analyses usually
243 were case studies and small-scale surveys using teacher interviews and questionnaires, sometimes combined in
244 mixed methods studies using documentary analysis and/or ethnographic or structured classroom observation.
245 The textbook's analyses included the extent of adoption of progressive curricula; the Sakata et al. review
246 more systematically documented classroom studies. Between them, they provide comprehensive analyses of the
247 literature, on which the following draws.

248 Category 1, Lack of Awareness, is in the cognitive domain. This is a baseline representing teachers without
249 knowledge of curricular reforms.

250 Limitations: A limitation deriving from possible disconnects between attitudes and behavior is that each
251 category in the Typology has binary measurement properties, i.e., teachers do or do not fit a particular category
252 (Guthrie 2023: 54-7). Because teachers can fit more than one category, the categories are not mutually exclusive (a
253 further requirement of the nominal measurement scale) and the categories may not be transitive because teachers
254 may fit some but not all those in the affective and behavioural domains (a further requirement of the ordinal
255 measurement scale). Another limitation stems from the focus on the effects of curriculum reforms on teachers:
256 no attempt is made to incorporate the effectiveness of different teaching styles on student learning. Nor does
257 the Typology identify how educational institutions can use this framework to design more effective professional
258 development or support system to change teachers' attitudes to LCP in order to persuade them to shift from
259 the TCP paradigm. The estimate in Guthrie (2021, Vol. 1: 244-8) albeit derived from secondary, English-
260 language sources -was that some one-third of developing countries were without official progressive curriculum
261 policies. The clearest national example of no such policies and teachers cut off from outside influences was
262 North Korea, where no room exists for discretion by schools or teachers and they must adhere rigidly to the
263 nationally prescribed curriculum (Cho et al. 2013). In Sub-Saharan Africa, 83% of Francophone countries did
264 not appear to have such policies (e.g., Burkina Faso, Chad and Mali). In some Islamic countries, progressive
265 policies did not occur (e.g., Iran and Turkmenistan). In other Islamic countries, token policies announced under
266 international pressure following 9/11 could be implemented unevenly under competition from religious traditions
267 and increasingly authoritarian governments (e.g., Azerbaijan and Uzbekistan).

268 In the estimated two-thirds of developing countries that officially adopted such curricula, some teachers might
269 have no knowledge of them, perhaps because they did not receive formal teacher training, received only basic
270 training long ago, or were in remote areas with scarce professional information. An example of limited training
271 came from large mixed method studies of primary teacher training in Ghana, Kenya, Tanzania and Uganda,
272 which had LCP policies. Documentary analysis, interviews and observation in teachers' colleges in all four
273 countries found that training amounted to apprenticeship systems using didactic teaching without modelling
274 LCP (Akyeampong et al. 2013). Similarly, textbooks may not model policy for teachers: a review by UNESCO
275 (2012) found wide gaps between official curriculum policy documents and school textbooks in developing countries.
276 Category 2, Recognition, has teachers who have heard about curricular reforms but have little understanding of
277 them, for example when policies have been announced but rollout has not yet provided in-service training.

278 Two examples illustrate this situation. Sargent's (2009) study in rural China included a mixed method survey
279 in 15 primary schools. Teachers in schools that had not yet begun implementation of curriculum reform policies
280 stated they did not know much about them. Against a long background of progressive policies in Tanzania, a
281 mixed methods study by Anney & Bulayi (2019) used a case study approach to assess knowledge about the use
282 of learner-centred approaches by four experienced maths teachers. The teachers demonstrated little knowledge
283 about the approaches leading to difficulties putting learners at the centre of lessons. Category 3, Understanding,
284 still in the cognitive domain, involves teachers who are sufficiently aware of progressive curriculum reforms to
285 articulate basic elements of LCP classroom methods (e.g., about simple aspects of classroom organization such
286 as wall displays and grouped desks) or basic elements of the philosophy (e.g., that reforms are student-centred).

287 This sort of understanding commonly is found in evaluations following in-service training, although Sakata et

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288 al. (2022) found 28 studies that identified difficulties understanding LCP reforms even after inservice. Guthrie
289 (2021) identified studies from Albania, Maldives, India, Malaysia, Nepal, Kosovo, and Tanzania with findings
290 that fitted this category. However, understanding of the principles does not necessarily indicate commitment or
291 implementation.

292 For example, in India Sriprakash (2012) conducted an ethnographic case study of the introduction of child-
293 centred education in two projects in 16 rural primary school communities, including in-depth interviews with 22
294 teachers. Teachers were unpersuaded that child-centred approaches would help students learn syllabus content.
295 Otherwise in India, Padwad & Dixit (2018) and Mukherjee (2018) reported on recent changes in two different
296 Indian states to English language curricula from TCP transmission to LCP constructivism. Both reports were case
297 studies of one motivated, experienced teacher. Both teachers showed partial understanding of the changes and
298 did implement some aspects, but many contextual factors such as exams -restricted implementation. In Albania,
299 Vampa (2017) conducted a mixed methods study with 300 educationalists. 90% of teachers interviewed about the
300 student-centred teaching model expressed uncertainty about understanding the philosophy. School leaders and
301 teachers understood it simply as a new technique for putting students chairs in a circle rather than in the classical
302 form where the teacher stood in front of the class. In Kosovo, Zabeli et al. (2018) surveyed 36 in-service teachers
303 about their understanding and use of contemporary and traditional teaching methodologies. Teachers understood
304 the student role in learner-centred education but appeared to have a more teacher-centred than learner-centred
305 understanding of it. Teachers self-report indicated 'a rather superficial view' (49) on classroom implementation.

306 Explicit examples occur of passive resistance to progressive reforms. In the Dominican Republic, teachers
307 struggled to implement complex curriculum changes. Most teachers reverted to the old curriculum and pedagogy
308 with which they were most comfortable: while teachers and the teachers' unions have not organized actively
309 against the reforms, this passive resistance has complicated the ability of the reforms to show success at the local
310 level (Hamm & Martinez 2017: 293).

311 In Turkey, teachers were aware of and starting to use some different classroom methods. However, because
312 of concern about pupils' exam success, teachers had many positive reasons for covert The category has teachers
313 who, when asked, espouse beliefs that are inconsistent with their classroom actions. Many teachers claim in
314 interviews, questionnaires and focus groups that progressive change occurs but triangulation with classroom
315 observation often finds the same people actually use TCP.

316 Category 5, Actual Belief, is still in the affective domain. This involves teachers articulating reform methods
317 and philosophy in sufficient depth and over time to indicate genuine commitment, especially talking with their
318 peers. In contrast to questionnaire studies, information about teachers' deeper beliefs is more likely to be identified
319 from in-depth ethnographic case studies where researchers can have on-going conversations with teachers and
320 observe their interactions with other teachers in a variety of situations. Even so, the teachers may not be able to
321 implement their beliefs fully or practice them regularly.

322 This type of case study is infrequent in the literature. Two thorough interview studies were in a collection
323 about teachers of English faced with new communicative curricula (Wedell & Grassick 2018). In Argentina, a
324 teacher who supported the spirit of the new language approach became frustrated with it as impractical, in part
325 because it did not fit the longstanding cultural tradition among students and the community of rote learning
326 and summative evaluation (Soto 2018). Another case indicated that committed teachers may reverse their beliefs
327 over time. In China, Yan (2018) detailed a secondary school teacher who, over a 10-year period, went from initial
328 acceptance of reform goals to acceptance of the prevailing culturally appropriate exam-oriented education because
329 of its importance to students' life chances.

330 An unusual reformist curriculum not based on Western concepts was the Bhutan government's introduction
331 of a unique Buddhist philosophy, known as Gross National Happiness. The effect of mixed methods studies by
332 Kezang Sherab & Phuntsho Dorji (2013) and Deki Gyamtso et al. (2017) was strong support for the policy
333 in principle by teachers, an indication of adoption in extracurricular activities, but little evidence of change in
334 classroom practice. Over 80% of teachers in one of the studies expressed views in favour of student-centred
335 teaching and learning, however classroom observation found, it appeared that they knew the jargon and even
336 believed it, but had not been able to translate their ideas into practice (Kezang Sherab & Phuntsho Dorji 2013:
337 23).

338 Category 6, Surface Practice, is in the behavioural domain. Here, teachers demonstrate in their classrooms
339 visible but surface elements of student-centred methods, either because they believe in them or are following
340 instructions. Such methods might involve arranging furniture into groups rather than rows or using This is
341 another category with many examples. Guthrie (2021) identified studies from 35 diverse countries of teachers who
342 expressed knowledge, understanding and/or support for progressive policies but their actual classroom behaviour
343 was teachercentred. The studies came from Afghanistan, Argentina, Armenia, Bhutan, India, Botswana, Brazil,
344 Cambodia, China, the Commonwealth of Dominica, Egypt, Indonesia, Kiribati, Kosovo, Kyrgyzstan, Laos,
345 Lesotho, Libya, Malawi, Malaysia, Maldives, Mauritius, Mongolia, Namibia, Nepal, Philippines, Senegal, South
346 Africa, Sri Lanka, Tanzania, Timor-Leste, Turkey, Uganda, Vietnam, and Zimbabwe. In Tanzania, for example,
347 Barrett (2007) interviewed 32 teachers in 18 primary schools, observed 28 lessons and compared what teachers said
348 was good classroom practice with their actual practice. Teachers' professed beliefs reflected official reform policy
349 but they actually taught much more formalistically. Song (2015) reported that Cambodia and its aid partners
350 had promoted LCP for almost two decades. Drawing on questionnaire and interview surveys with primary school

351 teachers in two districts, the study analyzed teachers' beliefs in and classroom implementation of LCP. Teachers
352 professed change but classroom instruction remained predominantly front-oriented and textbookbased. Zahid's
353 (2019) questionnaires with 100 teachers in Afghanistan found they often claimed to have some variety in their
354 methods however classroom observation found they only read from the textbook and then asked the students
355 to read. The textbooks had an active teaching approach; the classes did not. Omar (2019) studied the English
356 curriculum in Libya through a detailed mixed methods study of 10 secondary teachers. Although the teachers
357 reported positive views about learner-centred teaching, this was not consistent with their practice. Classrooms
358 remained teachercentred and cooperative learning was almost nonexistent. The findings suggested that the Libyan
359 school culture tended to be incompatible with the curriculum principles. A different approach was used in other
360 curricular areas, especially Arabic language learning, where teachers were not expected to use new pedagogy.
361 In Tanzania, a study involving 30 teachers in four schools found national and international education policies
362 influenced what teachers believed they should value about participatory methods and learning ??Sakata 2021;
363 ??akata et al. 2021). However, this was not in accord with what they genuinely did value. The teachers were also
364 affected by the structure of the country's assessment system, leading them to regard memorization as a notable
365 goal. resistance to curriculum reforms, which ??ltinyelken (2013: 111) This is an area where the literature has
366 wide ranging interpretations of LCP implementation. Sakata et al. (2022) identified 71 texts that discussed the
367 extent to which LCP or TCP was implemented in a reform context. The clear tendency was for 'Predominately
368 TCP' (48% of the studies) to remain in place, followed by 'Balance between LCP and TCP' (34%), with the
369 fewest texts identifying 'Predominately LCP' (18%). 'Balance' referred to reports of a mixture of unspecified
370 LCP and TCP approaches where neither dominated. Other studies refer to 'balance' as 'hybridization' (e.g.,
371 Barrett 2007). More specifically, the Typology distinguishes between surface uses of pedagogy and deep uses of
372 epistemology. Dozens of examples of classroom use of LCP methods in Guthrie (2021) were almost invariably
373 of surface features of classroom management. Deeper elements (involving student knowledge construction rather
374 than teacher knowledge transmission) were very rare.

375 In Mongolia, group work was a minor adaption to student-centred learning in a common formalistic lesson
376 pattern. Instead of having students ask questions individually, most teachers made students gather questions
377 in small groups first and then had group monitors present the questions to the class, which reflected deep
378 Mongolian social structure rather than democratic individualism (Steiner-Khamsi & Stolpe 2006). A sample
379 of 63 teachers in 30 rural secondary schools in Peru occurred after a new national curriculum shifted from
380 highly specified content to outcomes-based constructivist competencies. Observation found changes in teachers'
381 practices but they affected class work and learning at a rather superficial level such as teacher questions involving
382 low cognitive content (Balarin & Benavides 2010). In Tanzania, teachers in general enacted 'more of the form than
383 the substance' of learner-centred activities ??Bartlett & Mogusu 2013: 72). In Belize, a mixed methods study of
384 implementation of applied secondary science course in one secondary school found that teachers organized hands-
385 on group investigations in the classroom and field but other classroom methods usually involved didactic note
386 taking (Waight et al. 2018). In China, LCP was well accepted in rhetoric leading to more time on pupil activities,
387 however teaching and learning practices continued to reflect traditional Confucianism (You 2019). In Maldives,
388 classroom observation of 172 teachers in 18 primary schools found the curriculum was adapted to the school
389 settings but teachers did not alter their usual classroom practice. While activity-based lessons such as group
390 work were observed in 70% of the classrooms, all the activities focussed on delivering and assessing content and
391 did not encourage students to develop critical thinking (Shibana et al. 2019). A mixed methods case study of a
392 primary school in Ethiopia found a peer leadership system seating classes in groups of five or six with academically
393 successful 'network leaders' facilitating group work and supporting the other group members' learning. However,
394 the delegation of teaching responsibilities to students does not alter the fundamental relationship between students
395 and the curriculum: schooling is still understood as the transmission of knowledge embodied in the stateauthorised
396 textbook ??Mitchell 2017: 111).

397 Other insights into apparent classroom use of LCP came from Indonesia. where PAKEM (in English, active,
398 creative, effective, joyful, and innovative learning) was an educational philosophy incorporated in several donor
399 projects (Cannon 2020). PAKEM was widely implemented by teachers, with consistent reports of improved
400 learning outcomes, motivation and behaviour. However, close observation of PAKEM classrooms suggested it
401 was not commonly implemented in full.

402 Classrooms consistently show evidence of improved learning environments. There are displays of teaching
403 materials and student work, reading corners with collections of appropriate books, students sometimes working
404 actively in small groups or working alone on a specified task with a variety of materials or worksheets. But this
405 changed environment is one where teachers can also be observed using didactic methods, asking closed questions,
406 directing student activity and following formal classroom and school routines. It is apparent that many teachers
407 are using more flexible methods, require more student activity, but they are still typically dominant in their
408 classrooms. In other words, teachers have a greater range of teaching behaviours to use flexibly and with
409 confidence. Students certainly have a more active role in class. But their activity is within clear constraints
410 defined by the teacher. Observation suggests that full implementation of PAKEM as intended is not common.
411 However, partial implementation of a more flexible approach to teaching and learning is increasingly common
412 (100-1).

413 Teachers in this category can also put on artificial demonstrations for outsiders. In Indonesia, Sopantini (2014)

8 SUMMARY OF EVIDENCE:

414 found from classroom observation in 10 schools in eight provincial urban and rural locations that teaching was
415 traditional, didactic and teacherdirected. In the two cases observed where teachers made efforts to implement
416 active learning, the changes were mainly cosmetic, consisting of changing furniture to allow for group work and
417 occasionally taking children out of the classroom for activities such as observing plants in the playground: it
418 was also clear that these approaches ? were not yet integrated into daily practice and were implemented only
419 on certain occasions and for specific lessons -for example when a visiting specialist was observing the class (269).
420 Very few examples of this category were identified is a collection of case studies (Wedell & Grassick 2018) or
421 by Guthrie (2021), being of innovative individuals who acted on their own initiative but lacked support from
422 colleagues and students. A very rare successful example was a brilliant innovative teacher who developed and
423 continued to use group learning techniques in his grossly overcrowded classroom in Cameroon (Kuchah & Smith
424 2011). Kuchah had over 100 students in the class, some crammed into a very hot classroom and others standing
425 outside at the windows, and with very limited access to textbooks, but he managed to develop a process of group
426 learning in which students were active collaborators. This involved them working outside in groups of ten with
427 elected monitors and rules of conduct developed democratically by the students themselves. One of the features
428 of the peer leadership approach was that it developed experientially as a grounded solution to a problem of
429 limited resources. Although this is an inspiring story, no evidence was provided about learning outcomes as a
430 product, nor was there any suggestion that other teachers adopted the methods.

431 Otherwise, in Pakistan Shamim (1996) wrote up a reflective case study of an attempt to introduce LCP in his
432 own classroom. Students shared community perceptions of teaching as hierarchical and based on transmission
433 of knowledge and did not accept some equalization of power in the classroom. The attempt to innovate met
434 student resistance manifested overtly as boycotting classes and covertly as silent noncooperation in class. In
435 the Philippines, an 'exceptional and dedicated teacher' ??Vilches 2018: 15) believed in the overall approach
436 in a new communicative English curriculum and successfully dealt with it as an experienced master teacher
437 involved in textbook writing, but offered traditional grammar lessons on the side. The teacher was involved in
438 in-service teams and mentoring colleagues, which met some resistance from the other teachers and the report
439 did not contain any evidence that they adopted the approach. In Maldives, an action research case study was
440 of a single, one-off field study lesson out of normal school hours by a teacher keen to be involved in problem-
441 based learning. The somewhat artificial lesson was successful and had a positive reaction from the students.
442 There was no indication whether the teacher subsequently practiced the approach (Shafeeqa & Shiyama 2019).
443 Otherwise, Willsher's (2013: 263) observation in Laos is relevant: ? a 'formalistic' approach to teaching is part
444 of the tradition of teaching ? where knowledge is primarily 'transmitted'. In those uncommon instances where
445 knowledge is 'constructed' it is always constrained by the over-riding concerns to get on with the 'proper' teaching
446 of textbook content.

447 8 Summary of Evidence:

448 The examples that illustrate the Typology were drawn from extensive literature searches and were consistent with
449 the general pattern of findings in Guthrie (2021). Attempts to introduce progressive classroom reforms through
450 top-down curricula policies have occurred in some two-thirds of the developing countries. Under trial conditions
451 some surface appearances of initial classroom implementation can appear. However, any initial impressions
452 of paradigm shift do not survive. Teachers typically were aware of official curriculum policies decreed at higher
453 levels and could articulate knowledge about them, especially following in-service training. Teachers could espouse
454 belief in LCP but did not implement deeper knowledge generation aspects in the classroom; rather, teachers'
455 theories-in-use involved TCP and knowledge transmission. Considerable evidence of increasing surface use of
456 LCP techniques did not demonstrate a likelihood of wide, deep or sustained adoption, i.e., of paradigm change
457 among classroom teachers.

458 The effect can be interpreted in terms of the Guthrie Teaching Styles Model ??Guthrie 2011: 202-8). This
459 Model presents five teaching styles from more to less teacher-centred. No one style is defined as 'better' than
460 another, with such evaluations excluded as an external matter. The Authoritarian, Formalistic and Flexible
461 teaching styles are all founded in revelatory epistemology and intergenerational knowledge transmission. The
462 main role of the Authoritarian teacher is to enforce obedience to organizational norms (e.g., school rules). The
463 Formalistic teacher is also hierarchical, formal and dominant but TCP is a route to transmittal of knowledge
464 rather than to obedience as such. The Flexible style teacher uses limited variation in methods to transmit
465 given knowledge while retaining a hierarchical role. The Liberal and Democratic styles are founded in scientific
466 epistemology and knowledge classroom. In Senegal, time teaching was 30% higher when observers were inside
467 compared to when teachers did not know observers were watching from outside the classroom. In Tanzania,
468 teaching time was 10% higher. In China, Yan's (2018) case study found that any adoption of the progressive
469 practices in a secondary school was a pretence during school inspections. In Uganda, Wenske & Ssentanda
470 (2021) found that teachers often disregarded new child-centred teaching methods or used them only when being
471 supervised. V.

9 Implementation Constraints

When teachers and teacher educators reported on difficulties facing implementation, they commonly and realistically implicated difficulties from systemic classroom, school and contextual conditions beyond their control. In the 94 articles that Sakata et al. (2022: 10) cross-tabulated, thematic analysis identified a total of 718 LCP implementation enablers and constraints. The constraints, at 77%, far outweighed the enablers at 23%.

The numerous examples of constraints in the literature include a study in Nepal that used questionnaires with 327 primary teachers' and follow-up with 25 teachers in focus groups. Teachers claimed close alignment between their beliefs about classroom pedagogy and progressive reform goals but blamed endemic issues of instability and inequity for limited implementation (Ham 2020). In Eritrea, a qualitative study investigated 12 experienced secondary teachers' perceptions of LCP. The teachers expressed positive attitudes but identified many implementation barriers including a strong authoritarian culture, a content-laden curriculum, large class sizes, exam orientation by the students, lack of professional training, and lack of teacher knowledge about individual students as a barrier to identifying their individual needs (Tadesse et al. 2021). A formative evaluation of a well-supported NGO in-service training programme in five secondary schools in Malawi found from 24 teacher and head teacher interviews that all participants knew key concepts about active learning. Nearly all the teachers claimed they were competent to implement active learning and were doing so. However, all interviews identified key implementation challenges, including large classes, lack of materials, the use of English, long distances to school, and poverty (Altinyelkin & Hoeksma 2021). Claims about practical barriers that classrooms, schools and systems generate for curricular changes are realistic responses to objective conditions. Blame-shifting: One qualification comes from Jordan, where internationally influenced neo-liberal curricula included competency-based approaches to change from teacher-centred transmission and memorization to international models of student-centred and active learning to develop a knowledge economy. Al-Daami & Wallace (2007) surveyed 500 primary teachers about their involvement. Tight central control failed to engage allegiance to the changes. Tellingly, officials blamed failures on schools; head teachers blamed parents; and teachers criticized a curriculum that lacked relevance and failed to engage pupils. While practical barriers to classroom change are real issues, they can also provide a blame-shifting excuse for non-implementation of inappropriate reforms.

Conversely, a long-recognized pattern is for curriculum change agents to treat teachers as a constraint and blame them for non-implementation of inappropriate reforms (Vulliamy 1990). A case in point comes from ?abeli et al. (2018: 49), who found 'a rather superficial view' on classroom implementation in Kosovo and asserted that action should ensure, the existing but outdated values and practices are challenged in thoughtful but firm ways. Implementing a new philosophy ?will not be sustained if previously held values are not changed to ensure that new practices are in congruence with the principles and practices of [LCP] (55).

10 VI. Research Literature Limitations

While objective conditions do inhibit implementation of LCP, lack of clarity about deeper cultural issues can contribute to confirmation bias in the research, to which some methodological limitations contribute. Confirmation Bias: Teachers' knowledge of progressive reforms in the cognitive domain in the Typology and their espoused positive attitudes in the affective domain are routinely written up in evaluations and research studies as justifying further implementation efforts to overcome systemic constraints. Optimistic interpretation of weak self-report data as supporting LCP can indicate a propensity to confirmation bias, the well-recognized tendency for researchers to reach positive conclusions and journals to publish positive results that support theories rather than negative results (Oswald & Grosjean 2004).

An example of confirmation bias was a contracted evaluation synthesized case studies of USAID teacher in-service projects in Cambodia, Egypt, Jordan, Kyrgyzstan, and Malawi that assessed teachers' classroom behaviour using data from interviews and focus groups (Ginsburg 2009). Teachers could articulate active learning policies, from which changes in classroom behaviour were inferred. Only the Egyptian

11 G

Understanding Teacher Reactions to Curriculum Reforms: A Comprehensive Typology study added systematic classroom observation, however changes were modest. The conclusion went beyond the data to claim that real classroom change did occur and that it should be supported by more targeted financial inputs. Despite lack of classroom take-up, Schweisfurth (2013) argued for an emancipatory role for progressivism on the grounds that human rights arguments rise above research evidence about reform failures so that the effort to implement LCP 'must go on' (5). A somewhat extreme example of optimism was based on the apparently successful introduction of LCP in Iraqi Kurdistan, which involved university researchers working with just three teachers (Burner et al. 2017). On this slim basis, the recommendation for the whole of Kurdistan was that LCP topics should be part of teacher education and in-service practicum, and textbooks and classroom furniture should be adapted to LCP to smooth a transition phase from traditional teaching.

Weak Data: Three research methodology limitations can contribute to confirmation bias. As discussed above in Section III, one limitation is that positive evidence about espoused beliefs can come from questionnaires, interviews and focus groups where teachers may perceive the role of the educational researcher as embodying a power relationship that could operate to their disadvantage, particularly when the research is evaluating official

532 policies. Hawthorne Effect: A third methodological limitation is that the Hawthorne Effect during pilot projects
533 and curriculum trials can provide an initial appearance of success deriving from the attention the trial brings to
534 participants rather than the substance of the trial itself. Lack of evidence about longer-term sustainability arises
535 in part because the published literature has many formative evaluations of classroom change and few summative
536 evaluations. A major exception was a review of grey literature in Indonesia by Cannon (2017), who identified
537 completion reports on 91 education sector aid projects from 1971 to 2017 using evaluations commissioned by
538 donors about their own projects and therefore vulnerable to positive bias. Even so, only about half the projects
539 were considered sustainable or likely to be (i.e., had identifiable outcomes continuing at or near the completion
540 of donor inputs). The projects that targeted primary or secondary schooling were no more successful than those
541 targeting other sub-sectors. One school example was an ex post facto evaluation of a UK project on active
542 learning by Malcolm et al. (2001), which found some adoption of active learning principles but only in superficial
543 ways, such as arrangement of desks. There was little or no evidence of deeper adoption, change from teacher
544 transmission of knowledge, or sustained usage. Overall, the figures that Cannon identified were highly consistent.
545 With a sustainability rate of only half, different types of project had no more than a random 50:50 chance of
546 long-term success or failure.

547 12 Lack of Triangulation

548 13 VII.

549 14 Reverse Engineering

550 Teachers' constructs classify their reality under the influence of their cultural, social and educational environ-
551 ments. The classroom evidence that illustrated the Typology is consistent with Rogers' analysis of adoption of
552 innovation. While espousing progressive attitudes can be professionally expedient for teachers, and while there
553 are real systemic constraints, nonadoption as theories-in-use can be a reasoned response to complex changes
554 that offer no relative advantage, are not compatible with existing methods, are complex, and offer no observable
555 outcomes for clients, such as students and parents concerned about exam results. One implication is that teachers
556 are more likely to adopt classroom methods consistent with their own cultural values rather than foreign ones.
557 Positive Deviance: The 'reverse engineering' analogy is with engineers who take a product apart to see how it was
558 built and then copy it. The underlying concept is 'positive deviance'. The basic assumption is that better local
559 practices will be more easily adopted than those from elsewhere. The concept came originally from public health
560 (Zeitlin 1991) and was taken up in business studies (Pascale & Sternim 2005), although a study in Palestine
561 that triggered the analysis in this section is rare in education. Yarrow et al. (2014) used a grounded approach
562 to identify successful teaching practices in Palestine. Using data on 122 primary and secondary schools, and
563 after controlling for student, school and community characteristics, teachers with high-performing classes used
564 a different mix of practices compared to teachers with low performing classes. The practical aim of reverse
565 engineering is as a form of action research to identify which teaching methods are associated with high student
566 results and The effect for practical classroom research is a synthesis that takes account of the failure of 'global
567 best practice' LCP policies to generate top-down classroom change in developing countries and recognition that
568 improvements to local versions of TCP are more likely to be adopted by teachers in formalistic systems than are
569 progressive imports.

570 15 VIII.

571 16 Conclusion

572 The Typology of Teacher Reactions to Curriculum Reforms helps interpretation of the many complexities in the
573 research evidence about curriculum adoption or non-adoption by classroom teachers. While knowledge of a reform
574 is a necessary precondition for attitudes and implementation, conformity espoused in the affective domain may
575 not interface neatly with theories-in-use or classroom practice in the behavioural domain. Expedient responses
576 by teachers to perceived professional pressures may not predict classroom adoption. Objective constraints may
577 provide a blameshifting excuse for non-implementation. Even genuine commitment by teachers may not be a
578 predictor of successful implementation in the face of overriding objective realities provided by schools, classrooms,
579 communities and education systems, as well as underlying cultural values. Surface classroom adoption may not
580 reflect teachers' underlying antithetical beliefs, while deep practice may not be sustained.

581 Serious mismatches often occur between the progressive curriculum paradigm of change agents (with which
582 teachers may find it expedient to express support) and teachers' formalistic paradigm (founded in deeply engrained
583 cultural values and cultural epistemologies that provide foundations for their classroom behaviour). The potential
584 for paradigm shift by teachers becomes mediated through attributes such as Rogers' (2003) perceived relative
585 advantage, compatibility, complexity, trialability, and observability to clients. The effect is that classroom changes
586 are more likely to be adopted as long-term practice if they fit teachers' constructs and are successful in their
587 own terms. The effect seen in the examples that illustrated the Typology was that teachers rarely did more than
588 add minor elements of LCP to their existing TCP. The longer-term perspective is that traditional formalistic
589 paradigm behaviour usually overwhelms the progressive curriculum paradigm and Research Design: The starting

590 point for reverse engineering is student learning. The next step is to work backwards to identify which teaching
591 practices correlate positively with student learning in a particular context. This knowledge can then help generate
592 culturallyinformed in-service and curriculum development. A research design for field experiments in Figure
593 2 conceptualizes separating classes into high-and lowachieving ones to establish which teacher practices are
594 associated with high student outcomes compared to other teachers with similar resources but low outcomes. A
595 control group of classes is identified with low learning results, for example classes where mean results are in the
596 lowest quartile on high stakes public exams. An experimental group is identified with mean results in the top
597 quartile. The two groups are otherwise matched as much as possible on other variables (e.g., school location,
598 student socio-economic status, teacher qualifications and experience).

599 Classroom observation identifies teaching methods in as much detail as possible, especially timeon-task,
600 percentage of teacher talk, type of questions, types and extent of student activities, and amount and types
601 of assessment and feedback. The teaching methods in both groups are correlated with student results to identify
602 which techniques are and are not associated with higher results. This information can provide the basis for
603 in-service programmes that encourage teachers to use the techniques that do improve student performance and
604 to lessen use of techniques that do not contribute.

605 **17 In-service training = Control Group**

606 Classes with low student results.

607 **18 Experimental Group**

608 Matched classes with high student results.

609 **19 Teaching Style**

610 Methods correlated with low results.

611 **20 Teaching Style**

612 Methods correlated with high results. any initial appearances of paradigm shift do not survive. In contrast,
613 improved formalistic techniques, such as identified through the research design for reverse engineered field
614 experiments could have a relatively easy path to adoption because they are compatible with teachers' constructs.
615 One effect is a failure for paradigm reversal to occur among adherents to the progressive paradigm despite the
616 widespread evidence of its failure to generate paradigm shift from formalism in developing country classrooms
617 (Guthrie 2015; ??017). Formalistic teachers in developing countries can have culturallyvalid reasons not to
618 maintain LCP reforms as routine practice. Any reluctance to change may be heightened when curricula involving
619 LCP require teachers to make fundamental changes to long-standing cultural constructs that value TCP. Such
620 constructs can provide stability in education systems marked by inappropriate curriculum reforms. Lattimer
621 (2019) summarized this perspective: rather than criticize the often-blamed 'lack of resources' or 'systems that
622 are resistant to change' or 'teacher intransigence' for reform failures, ? the blame [is] squarely on the cultural
623 hegemony of the reforms themselves ? the priorities and expectations that guide progressive educational reforms
624 are inconsistent with the traditional and current values of many of the cultures and communities where they are
625 being imposed.

626 A sceptical approach to claims about the relevance of and progress on implementation of LCP curriculum
627 reforms seems justified. The need is to understand how teachers and students perceive innovation so that change
628 efforts are consistent with their beliefs about education and how to improve teaching. As ??hafi et al. (2016:
629 135) wrote, 'cultural models are not true or false, may or may not be logical or rationale, may not be realized or
630 conscious, but are very real and instrumental in guiding thought and behavior'.

. The assumption was that 'quality' and 'modernization' required student-centred classrooms (Burkhalter & Shegebayev 2012; Arreman et al. 2016; Altinyelkin & Sozeri 2018). Other progressive concerns with democratization, human rights and gender, as well as sustainable development and global warming, were added to the mix during subsequent decades (Barrett et al. 2006).

Capture by Neo-liberalism: During the 1990s, neo-liberal economic reforms to education system management came actively into play, especially through the increasing educational influence of the World Bank (Klees et al. 2012; Auld & Morris 2014; Tikly 2014). Neo-liberal packages occurred in Africa (Zavale 2013), the Americas (Makino 2017) and Asia (Casinader & Sheik 2021). In the former USSR following its breakup in 1991, most developing countries in Central Asia borrowed education policies voluntarily out of fear of falling behind internationally; other countries had educational reform packages imposed through the neo-liberal structural adjustment loan policies of the World Bank (Silova 2011). In adopter countries, competency-based curricula were often associated with Outcomes-Based Education and qualifications frameworks that were intended to improve how credentials were oriented to the labour market by generating skilled labour forces to attract industry as part of globalization and the 'knowledge economy' (Al-Daami & Wallace 2007; Allais 2014). Teaching methods, such as 'active learning', reinforced the earlier progressive curricula during the 1990s and 2000s.

Global Best Practice:

Figure 1:

Understanding Teacher Reactions to Curriculum Reforms: A Comprehensive Typology

	COGNITIVE DOMAIN		AFFECTIVE DOMAIN	
(1) LACK OF AWARENESS	(2) RECOGNITION	(3) UN- DER- STAND- ING	(4) ESPOUSED BE- LIEF	(5) AC- TUAL BE- LIEF

Teachers are unaware of progressive classroom methods and educational philosophies, e.g., because they are isolated from information or there are no such reforms.

Teachers are aware that progressive reforms in methods and philosophies exist but have little understanding of them, e.g., because they have not service training received in-

Teachers can articulate basic elements of reform methods and philosophies, e.g., desks are grouped, the approach is student-centred.

Likelihood of implementation Source: Author. Teachers make ex

Cognitive Domain:

Figure 2:

Behavioural Domain: The Behavioural Domain is of observable classroom practices, whether through ethnography or classroom observation schedules. Surface Practice identifies visible but superficial LCP classroom techniques for knowledge transmission rather than knowledge construction. Deep Practice teachers use classroom methods to promote engagement with progressive educational epistemology involving student construction of knowledge.

Figure 3:

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