Cognitive Development of Student in the Context of Classroom-Level Curriculum Development

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Abstract- **This qualitative study examined the impact of teacher curriculum approaches (curriculum-transmitter/ curriculum-developer/ curriculum- maker) on student cognitive change (reading, writing, speaking, and listening ability). This study's conceptual framework was grounded in teacher curriculum development (Shawer et al., n.d.) curriculum implementation curriculum-making (Clandinin and Connelly 1992; Doyle 1992; Shawer 2003), student cognitive change (Erickson and Schultz 1992; Craig 2001). The study made use of the qualitative paradigm at the levels of ontology (multiple curriculum realities, Jackson 1992), epistemology (interaction with rather than detachment from respondents) and methodology (idiographic methodology and instruments) (Guba and Lincoln 1994; Cohen, Manion, and Morrison 2000). Research design involved qualitative evaluation (Clarke 1999) as the research strategy and general interviews, pre- and post-lesson interviews, group interviews and participant observation. Grounded theory (Glaser and Strauss 1967; Strauss and Corbin 1998) was the data analysis approach. whilst curriculum-transmission did not result in significant student learning or increase their motivation.**

Keywords: **Cognitive, Development, Classroom, Curriculum.**

INTRODUCTION:

Teachers adopt a fidelity, mutual-adaptation or enactment approach when they implement curriculum, where those adopting the fidelity approach are curriculum- transmitters who just deliver curriculum materials. In contrast, teachers following the adaptation approach are curriculum-developers who undertake curriculum adjustments; whereas those who enact curriculum act as curriculum-makers who achieve significant curriculum changes (Snyder, Bolin, and Zumwalt 1992). Although the difference itself has no importance, each approach involves different implications for student, teacher, curriculum and school development (Craig 2006; Schultz and Oyler 2006). On one hand, different curriculum approaches can turn the official curriculum into something different from the taught curriculum (Doyle 1992; Randolph, Duffy, and Mattingly 2007). On the other hand, they impact differently on teachers' professional development, since each approach entails different roles and opportunities (Schön 1983; Munby 1990; Parker 1997; Eisner 2002; Craig 2006). Moreover, teacher curriculum approaches directly impact student learning and motivation (Schön 1983; Eisner 1990; Erickson and Shultz 1992; Wells 1999; King 2002; Shawer 2006). Although the implications of different curriculum approaches are equally worth investigating, this study sought to solely assess their impact on students' cognitive change (learning) in reading, writing, listening and speaking abilities.

CONCEPTUAL FRAMEWORK:

- **Cognitive Change (Learning) and Classroom-Level Curriculum Development.**

Cognitive change is the development that occurs in the learners' cognitive schema (Shawer 2006), which relies mostly on teaching and learning. Both are context-bound terms and therefore can mean different things. Teaching generally means 'any conscious activity by one person [or more] designed to enhance learning in another [or others]' (Watkins and Mortimore 1999:3). In its narrowest sense, learning is the cognitive change that results from formal teaching. A broader definition suggests learning as any development that occurs to learners, including cognitive, and others. Learning, therefore, can mean getting, memorising and reproducing knowledge, acquiring and applying procedures and a personal growth. This is where the difference between curriculum-transmitters and developers is significant. Curriculum-transmitters conceptualise learning as just getting more knowledge, memorising and reproducing; whilst curriculum-developers perceive it as a personal growth. According to Siraj-Blatchford (1999), the former involves transmission and promotes rote learning, whereas the latter encourages active construction of knowledge that results in meaningful learning.

Effective learning depends on differentiation of learning experiences, content relevance and linking prior schema to new learning (Bruner 1978). Effective learning occurs when teachers provide students with varied learning experiences falling within their abilities (Tyler 1949). This requires teachers to know their students so that they can address their differences. Curriculum-developers address student differences by providing relevant content, since 'teacher decisions

about what content to present probably have a substantial effect on the pattern of student achievement' (Floden, Porter, Schmidt, and Freeman 1981:129). When curricula meet the relevance criterion, effective learning can occur. Dewey (1938:27) termed this curriculum continuity. 'Continuity of experience means that every experience both takes up something from those which have gone before and modifies in some way the quality of those which come after.' This means 'we do something to the thing and then it does something to us in return' (Dewey 1916:163). Teachers can achieve curriculum continuity by building on learners' sorties. For instance, writing can be taught by asking learners to 'write and respond to letters written by their classmates about individual struggles they are having' (Hytten 2000:462). Curriculum continuity fleshes out classroom-level curriculum development.

Children's… experiences are tremendously valuable resources for education. Our role as teachers is to build upon these experiences and to create an environment where students can make connections to other experiences, construct personal meaning out of what they are learning and become open to new possibilities for growth… Their experiences need to be taken seriously and woven integrally into the curriculum… There must exist continuity between the child and the curriculum in order for learning and growth to occur. (Hytten 2000:460)

Curriculum-developers enhance students' cognition not only at the knowledge level with which curriculum-transmitters are concerned, but also at the comprehension, application, analysis, synthesis and evaluation levels. They provide facts and principles and develop learners' cognition further by helping them to understand the knowledge they acquired. They also enable students to apply abstract learning to concrete situations and break down learning tasks into their component parts through recognising the underpinning elements, relationships and principles. They help learners to synthesise separate parts into a new whole, and to use internal and external evidence and criteria to evaluate things (Bloom 1956).

The impact of the three approaches on student learning is best highlighted by using a metaphor comparing curriculum-transmission to a frozen lunch. The curriculum-transmitters' role is to get lunch (curriculum) and heat it (instruction) for learners who have to finish the meal in the allocated time. 'It is not the teacher's responsibility (nor the students') to decide what or how long mealtime should be.' Students eating less are directed to a meal broken down into smaller pieces (remedial teaching); whilst those eating quickly receive better meals (gifted programmes) (Erickson and Shultz 1992:467). All students compete to eat more by learning 'to beat the system by optimising to the measures of performance, discovering how to pass tests, get grades and move through the levels of the system, without thinking very much about the knowledge they are supposed to be acquiring' (Schön 1983:332). This shows the negative impact of curriculum-transmission on learners who either refuse to learn at all (eat from the meal) and cause trouble (objection), or pretend to learn but rarely internalise what is delivered. Learning has become just for exams. In contrast, curriculum-developers are good cooks who provide a meal matching student taste; without them, the meal would not be tasty. This tasty meal (curriculum) is fully assimilated (learning), since students took the time to make it and determined how much to cook and eat (Erickson and Shultz 1992).

Curriculum-developers treat each group of students differently by acknowledging their learning style as 'an individual's preferred and habitual approach to *organising* and *representing* information' (Riding and Rayner 1998:15). Learners have differences in style, like wholistic, analytic, verbal, or imagery. Wholistic learners prefer to *organise* learning tasks into wholes, whereas analytic learners *organise* information into parts. On the other hand, verbal learners prefer to *represent* information verbally, whilst imagery learners *represent* it in mental images. Curriculum-transmitters cannot address style differences with their uniform approach, whilst curriculum-developers create learning contexts consonant with different cognitive styles (Klein 2003). Foreign language teachers, for example, can provide auditory learners, who prefer to learn through listening, with relevant listening texts. In addition, they can supply visual-style students, who learn better through seeing written language, with the appropriate input. Analytic students, who prefer to break down tasks, and holistic learners who learn better through whole chunks of language, require teachers to address their particular styles. Kinaesthetic students preferring to learn through doing things and physical movements learn better when their preferences are addressed. Field-dependent students need to learn in a context allowing them to listen to a teacher or peer tutor, whilst field-independent learners need opportunities to be autonomous (Tomlinson 1998).

If cognitive style is the psychological make-up that makes learners prefer to approach
learning in particular fixed and habitual ways rather than others (Meehan 2006), cognitive strategies are the mental operations learners perform to process learning tasks incompatible with their habitual cognitive style (Shawer 2003). Some students prefer to deal with words rather than numerals, because they were born with a verbal cognitive processor. When faced with abstract tasks including numerals, they need to develop strategies that enable them to learn the mathematical task that they do not normally like to handle. Part of curriculum- developers' work is to address this through their curriculum developments. Doing so, they change the paper curriculum into the pedagogical/ enacted curriculum (Doyle 1992).

Learner strategies involve the operations and steps learners use to facilitate information processing (cognitive strategies), and what they do to plan, organise and monitor learning (meta-cognitive strategies). Both influence the course and rate of learning: Cognitive strategies are the 'steps or mental operations used in learning or problem-solving that require direct analysis, transformation, or synthesis of learning materials in order to store, retrieve, and use knowledge' (Wenden 1986:10). Cognitive strategies involve asking questions, checking, revising, self-testing (Riding and Rayner 1998), analogy, memorization, repetition, writing things down, and inference (Hedge 2000). Meta-cognitive strategies are 'general skills through which learners manage, direct, regulate, and guide their learning, i.e., planning, monitoring and evaluating' (Wenden 1998:519). These involve over-viewing, paying attention, setting goals and objectives, organising, and self-monitoring (Hedge 2000). A pedagogical curriculum puts both strategies at the center.

RESEARCH DESIGN:

- **Paradigm and Strategy**

Because different teachers and students conceptualise and experience curriculum differently, the study used the qualitative paradigm to assess the impact of different taught curricula on students (Englund 1997). This guided the research ontological perspective to be (multiple curriculum realities, Jackson 1992) and epistemological stance as (interaction with rather than detachment from respondents) (Guba and Lincoln 1994). Qualitative evaluation was used to assess the impact of teacher curriculum approaches on student learning and motivation; because evaluation is a key strategy in assessing the effectiveness of instructional methods, curriculum materials, educators and students (Rossi and Freeman 1982; Stecher 1987; Patton 1990; Clarke 1999). The study sought to assess such impact 'through the analysis of spoken words, texts… [and] observable behaviour' (Shaw and Lishman 1999:63), to use the resulting information for assessing and improving future classroom practices.

College directors introduced the primary researcher to teachers who were briefed of the study's purpose, confidentiality and anonymity (Robson 1993; Sapsford and Abbott 1996; Cresswell 1998). They set a timetable for fieldwork ranging between three to four months. Purposive sampling was employed to assess the impact of different curriculum approaches on students (Denscombe 1998; Burns 2000). The initial sample was decided to be six English as a foreign language (EFL) teacher who depart from curriculum materials. This involved two trained (EFL qualifications) and experienced teachers (more than three years). Two trained teachers but having no experience (less than two months) had to be selected to compare the impact of experience. Two experienced teachers having no training were also needed to compare the training impact.

Theoretical sampling changed and broadened the scope of the sample, in line with the emerging themes, into three sets of teachers (Strauss and Corbin 1998): *Curriculum- transmitters*: teachers who deliver prescribed curriculum materials and topics (the student's textbook and the teacher's guide) without introducing new materials or topics and without making significant changes or adaptations. *Curriculum-developers*: teachers who develop curriculum through prescribed curriculum materials and topics; introduce new materials and topics and make significant curriculum changes and adaptations (original sample). *Curriculum-makers*: teachers who develop curriculum without reference to official curriculum materials and topics.

The primary researcher started with *three* teachers whom he originally selected as trained and experienced in EFL teaching; and who usually used and developed curriculum materials (according to his initial sampling strategy). Only one teacher met the criteria of initial sampling, whereas the other two tended to develop curriculum without using curriculum materials. They used the needs assessment strategy to derive the curriculum topics. He found a third of this type. Data analysis from these teachers prompted him to categorize them as '*curriculum-makers*'. We remember the primary researcher had one teacher left from the first three whom he started with, who met the initial sampling criteria. More teachers were needed. He found five who through interviews met the criteria of initial sampling, but classroom observation showed that only four of them were a match. These four teachers, in addition to the one we had earlier, were termed '*curriculum-developers*'. The fifth teacher who was different from the five teachers closely transmitted textbook content. Her unique approach prompted the researcher to study this different category of teachers. Again, more teachers were needed to reach compelling evidence and to allow for comparison. Only one was found. This and the other teacher (1+1) were termed '*curriculum-transmitters*'. Consequently, we had three teachers who developed curriculum without using official curriculum materials (*curriculum-makers*); five who developed curriculum through development and use of prescribed materials (*curriculum-developers*); and two textbooks teachers who made no curriculum developments (*curriculum-transmitters*).

- **Data Collection**

Teacher interviews, group interviews and participant observation were used in collecting the research data. Teacher interviews involved general and pre/ post-lesson interviews. General interviews (appendix 1) were to identify the impact

of teacher curriculum approaches on students. Interviews were semi-structured to explore issues, probe for and follow up on the responses and to allow for interaction (Kvale 1996; Blaikie 2000). Pre- lesson interviews (appendix 2) aimed to identify the topic and objectives of everyday teaching. Post-lesson interviews were to allow teachers to comment on the impact of everyday's lesson on students' learning and motivation. Group interviews (appendix 3) were to compare teachers and students' perceptions of the impact of the teacher curriculum approaches on students (Watts and Ebbutt 1987; Morgan 1988; Cohen, Manion, and Morrison 2000). General interviews took between 65 and 80 minutes, whereas pre- and post- lesson interviews ranged between three and twenty minutes. All took place in each teacher's college,

Interview trustworthiness (validity) and dependability (reliability) were checked in several ways. They were first transcribed verbatim (Kvale 1996) and content validated by 10 experienced teachers who made modifications to the questions in wording and number (Bloom, Fischer, and Orme 1995). Four educational researchers ensured that the questions addressed the research purpose. Interviews were piloted and further modifications were made. Further developments in the research focus introduced changes to the interview schedule (Cohen et al 2000). Participant observation was to depict the context where teachers constructed curriculum, validate meanings and capture the interactions (Yin 1994). Each teacher was observed between 15 to 22 times. Narrative records and tape-recordings of observations were made (Stake 1995). Observational data were validated and checked for dependability through methodological triangulation, where observations and interviews gathered the same information (Cohen et al 2000). The teachers endorsed our results after validating and checking them for themselves (Denscombe 1998; Davies 1999).

- **Data Analysis**

Grounded theory was to generate theory in a process of open, axial and selective coding. Open coding included line-by-line, whole-paragraph and whole-document analyses which resulted in: naming concepts and developing categories and properties (Corbin and Strauss 1990). Concept development involved 'in-vivo', 'abstracting' and 'borrowing from the literature'. In-vivo concepts were taken from the respondents' words, like `change of college`. Through abstracting, events were named on the basis of what understood from the data, like `objection`. Borrowing from the literature occurred when the data matched a `literature` concept that `worked` and `fitted`, like 'dropping-out'. The data were then searched and whatever matched a concept was named after it. Categories were developed through connecting related concepts under a wider concept, like `boredom`, `objection` and `change of classroom` were grouped under the `negative impact of curriculum approach` category. Properties were a group of concepts delimiting one category. Axial coding involved grouping sub-categories around one axis, like `positive impact of curriculum approach` and ` negative impact of curriculum approach` fell under 'impact of curriculum approach'. In selective coding, categories were refined, connected together and integrated in a coherent theory reflecting and subsuming all elements of analysis (Strauss and Corbin 1998).

SUMMARY OF MAJOR FINDINGS:

The data are presented around three sets of teachers: *curriculum-developers*: Carol, Ericka, Leslie, Mark and Linda; *curriculum-makers*: Nicole, Shelly and Rebecca; and *curriculum-transmitters*: Terry and Mary. Moreover, data presentation combines four sources of data: the teacher general interview; teacher pre/post lesson interview; student group interview; and classroom observation. The categories developed from the analysis are used to present the data around two main themes: the cognitive change and the change.

- **Cognitive Change**

Curriculum-developers, in their general interviews, consistently noted that their curriculum developments had generally `worked` with students. Linda noted. 'Though very experienced teachers usually write textbooks, why not just pick it up and do it page-by- page?... but everyone knows that doesn't work'. Leslie's adaptations, topics and activities worked because 'that's what everybody knows… it's a reasonable assumption to me... I would never just follow the textbook. I would always supplement. Content transmission isn't effective'. Figure 1 summarizes the areas of impact of each approach on student learning.

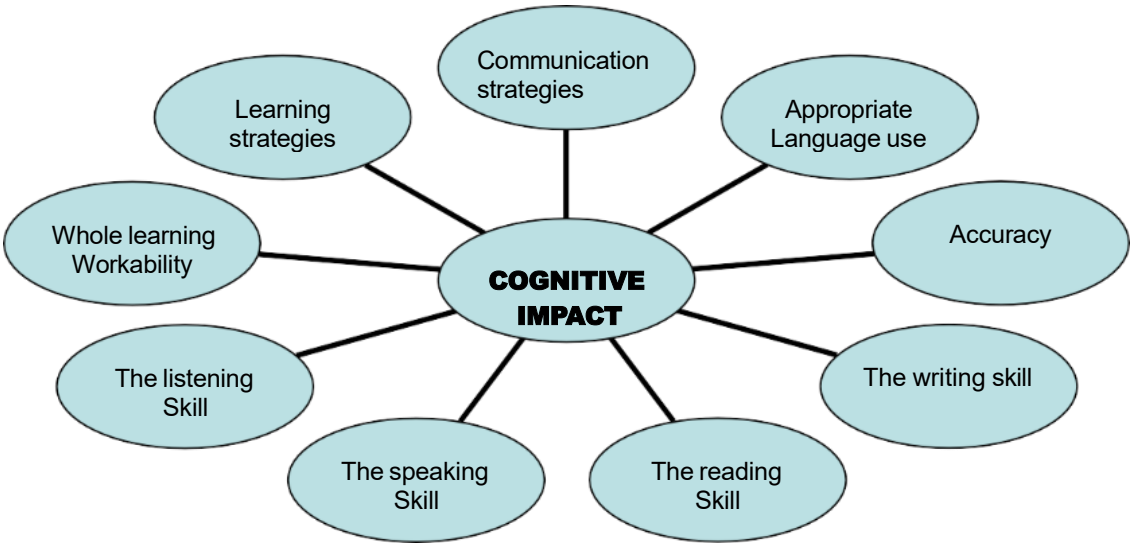

Figure 1. The cognitive impact of teachers' curriculum approaches on students.

Curriculum developments improved students' reading and writing skills. Ericka noted, 'I do have to improve their reading… in other ways'. This involved supplementing reading texts because 'there isn't enough reading in the book… I've been giving them writing which does seem to be working because they're doing it'. Mark exemplified; 'I did write today with my upper-intermediates and it was a hundred-word story, where you can only use each word once. That's not in the book… and that has more value'.

Curriculum developments developed students' listening and speaking abilities. Linda's developments, including building on student prior knowledge, adjusting content difficulty level and supplementing new content, improved their listening skills, in the sense that it engages them, or in the case of that book, where I missed out some of the listening or I attempted some and they were too difficult. I could see the students becoming de-motivated, disinterested because they didn't like their listening, because it was too difficult for them, so … I did supplement quite a lot of the listening and used other textbooks… for the level. I noticed that had the effect that they were motivated, and therefore they're learning from that.

Mark commented. 'I talked to a couple of them, just informally. They said they found the first video we did last week difficult and said they found this one a little bit easier, now. The first one was from BBC Two. This one was from Channel Five… They did say they found it easier … It certainly appears to have improved it'. In regard to speaking, 'yesterday, we did that thing about NASA. They listened to it, enjoyed it and then they were talking for about half an hour afterwards, in pairs etc'. He drew this comparison; 'but if I'd done something from the book… they may do it, but the language would have been a whole lot sparser. There would have been more pauses. There would have been more finished kind of thing'. He returned to emphasise 'this kind of topic encourages them to produce more. It's more motivating to receive and listen… they must learn better'.

In pre/post-lesson interviews, curriculum-developers commented on the cognitive outcomes in direct ways, because direct questions were used to elicit the relationships between their curriculum approach and student learning. I (*primary researcher*) asked: 'have you managed to achieve the objectives of today's lesson?' Carol offered positive replies. In one lesson, she helped the students to develop their writing skills 'yeah, I've got them interested in ways of joining information together… they've already done that'. In another, she helped them to improve their learning and communication skills in reading 'yes, I made them… focus on guessing unknown words. They managed to get the words.

To get the teachers to be specific about student learning, I asked this straightforward question 'what do you think the students actually learned from today's lesson'? Linda replied 'reading skills: looking at the organisation of text, reference words, also deducing meaning from context'. On another occasion, 'they developed their speaking skills and some vocabulary' (speaking/ vocabulary). A third, she said they got 'speaking practice, listening practice and some vocabulary relating to advertising' (listening/ speaking/ vocabulary).

In group interviews, curriculum-developers' students provided convergent statements with those of their teachers, noting the positive impact on their `whole learning`. Linda's students 'liked her using the textbook and other materials, because we learn more from that'. Ericka's students felt their speaking, reading, writing and listening improved 'when she supplied other materials… because we use them every day… other materials improve our speaking, writing and other abilities'.

Pre- and post-lesson interviews clarified the curriculum-transmitters' stance. When asked if he achieved the objectives of everyday lesson, Terry hesitantly replied 'Umm, I did because, well, obviously, I was able to tell how well the students are prepared for the exam'. Mary replied in a similar vein. Her typical answer was, 'I will have to continue with it tomorrow, because it's a hard work'. When asked if the materials were effective, Mary's replies were akin to this 'umm… they weren't too bad'. When asked if each day's lesson was successful, Terry replied; 'umm… maybe the second part was more successful… because some did well in the exercise'. So did Mary. 'Umm... let me think. Some of the students wouldn't get the grammar right. The explanation could have been a bit clearer'. When asked what he thought his students actually learnt from everyday lesson, Terry replied, 'I believe that they have learnt new words… practised speaking' (vocabulary/speaking). In another lesson, 'they learnt some grammar… They also learnt the symbols for fourteen consonants and four vowels. Mary replied 'from today's lesson, some vocabulary from the reading' (vocabulary). In a second, 'they learnt how to make requests and the difference between formal and informal requests' (grammar).

In group interviews, the curriculum-transmitters' students made it clear their teachers' approach was not conductive to learning. Mary's students agreed; 'now my English is very poor… I think reading newspapers and other ideas and materials can improve my language, not grammar'!! Terry's students' writing ability 'did not improve much'. Mary's students confirmed, 'we don't feel our listening improved, but if the topics are good and interesting, these can help us. It's just the book'! Terry's students agreed their listening 'improved, but it was not that much'. The students' speaking abilities did not improve either. Terry's students noted 'we need real world topics to speak more and communicate with all classmates. One added 'my grammar improved, but for speaking no, no'. A third explained that her speaking abilities rarely developed 'because we don't have much chance to speak in this class'.

Classroom observation was consonant with students' responses but dissonant with teachers' replies. The students showed lower understanding levels than their counterparts in the other classes. Terry did a textbook reading about high-heel shoes. About one-third of the students got it. For example, Terry asked 'can you name some types of shoes?' One said 'high-heel, pumps and evening shoes. About two-thirds could not answer. Those who were internally motivated answered, while the majority were uninterested and failed to answer.

The students rarely demonstrated ability in writing. I provide a representative sample of what the students wrote as homework. I did not observe any lesson, where writing was the focus in Mary's class. The paragraph is disorganized, full of punctuation and tense mistakes,

DISCUSSION:

This study examined the impact of different teacher curriculum approaches on students' learning and motivation. The results indicated that curriculum-development and curriculum-making (classroom-level curriculum development) led to significant improvement of students' reading skills. They could make sense of written texts through developing reading skills of previewing, skimming and scanning texts. It further developed students' reading comprehension through acquiring skills of looking at the central, main and supporting ideas of texts. Moreover, the students developed skills of looking at the text organization, reference words, deducing meaning from context and reading for gist and details. Classroom-level curriculum development has also improved the students' writing ability, since they could organize their writing by setting out introduction, development and conclusion elements. They were clear about thesis statement in the introduction, developing their writing by translating the central idea into some main ideas and developing each main idea into some other supporting ideas. They reached conclusions based on stated evidence.

Classroom-level curriculum development also enabled the students to develop their speaking abilities by engaging them in pre-speaking activities of how to open, close and keep a conversation going. It further enabled students to develop their listening comprehension through engaging them in pre-listening activities of predicting content, listing what they know about the text, working on key vocabulary and answering questions. They were able to listen for gist, key vocabulary and specific information. Curriculum-transmission, on the other hand, did not result in significant improvement of students' learning in these areas, since the majority of students hardly expressed themselves in oral and written discourse; while finding difficulty to make sense of written and aural language material.

We do not know if it was due to teacher personal style (Campbell 2007). One possibility can be teacher good training and experience, which concurs with previous research conclusions (Eisner 1990; John 2002; Doyle and Carter 2003; Shawer 2006; Latham and Vogt 2007). However, this had no bearing on curriculum-transmitters who were also trained and experienced. Another possibility is that a free management policy could be the motive behind curriculum development, which agrees with previous research (Gess-Newsome and Lederman 1995; Eisner 2000; Craig 2001; Benavot and Resh 2003). Again, curriculum- transmitters (specially Terry) had much freedom but never improved curriculum. Definitely, such contradictions call for a study about the motives behind teacher curriculum approaches.

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