Культурно-историческая психология
2021. Т. 17. № 2. С. 65—75
DOI: https://doi.org/10.17759/chp.2021170207
ISSN: 1816-5435 (печатный)
ISSN: 2224-8935 (online)

Cultural-Historical Psychology
2021. Vol. 17, no. 2, pp. 65—75
DOI: https://doi.org/10.17759/chp.2021170207
ISSN: 1816-5435 (print)
ISSN: 2224-8935 (online)

The Process of Subject Content Transformation as Examined Through Psychological and Sociological Perspectives: A Study Conducted in Oxfordshire, England

Sonia Khan
University of Oxford, England, United Kingdom
ORCID: https://orcid.org/0000-0002-9070-8218, e-mail: hi.soniakhan@gmail.com

Drawing from psychological and sociological fields, this study examines how teachers transform subject content for student learning in a classroom situation. Research on understanding teaching has downplayed the framing of macro-regulative contexts in shaping teachers' thinking and thereby pedagogy. Vygotsky [75; 76] brought to focus the teacher's role in mediating learning in classrooms through the use of psychological tools but could not fully, in his lifespan, attend to the sociocultural contexts that impact those who work within them. To address this gap, the study draws on the educational sociologist Bernstein's social theory [9; 10] which states that the ways in which institutions regulate the social relations within them impact the pedagogic practices in these contexts. A qualitative multicase study was applied and involved several English and mathematics secondary school teachers from Oxfordshire, England. The cross-case analysis reveals a connection between the micro-processes of teaching and learning and macro regulative discourse; demonstrates that teachers' pedagogic decisions are influenced by their reflections on their institutional culture within which and using which they work; and reveals an interplay of several processes in the ways in which teachers mediate and shape the quality of their students' learning.

Keywords: mediation, subject content transformation, teaching and learning, Bernstein's social theory, Vygotsky.

Acknowledgements. The author is grateful to I. Thompson and H. Daniels for their support in shaping an understanding of sociocultural and sociological perspectives, and V. Elliott for her guidance.

For citation: Khan S. The Process of Subject Content Transformation as Examined Through Psychological and Sociological Perspectives: A Study Conducted in Oxfordshire, England. *Kul'turno-istoricheskaya psikhologiya = Cultural-Historical Psychology*, 2021. Vol. 17, no. 2, pp. 65—75. DOI: https://doi.org/10.17759/chp.2021170207

Introduction

This study examines the mediational role that teachers play in transforming the subject content to engage students in their learning of academic concepts. The study was conducted in secondary schools in Oxfordshire, England, United Kingdom and provides an insight into an interrelation between micro-processes of teaching and learning and macro-regulative discourse in shaping the quality of teaching. Research has captured the notion of quality of teaching by looking into classroom subject pedagogy [3; 46; 68; 72; 74; 83] and into sociocultural contexts of teaching [4; 5; 45; 84]. However, these studies have neglected the framing of institutional contexts and have therefore downplayed a relationship between classroom pedagogy and institutional discourse. Research has also explored the concept of teaching through different practices prevalent in teaching: research in reflective practice is more on beginning teachers and reveal how such practices help them in gaining expertise [41; 51; 52; 61]; research in formative assessment in schools highlights the prominence of teachers' assessment of student learning [11; 12; 71; 81] rather than peer- or self-assessment [54; 71]; and lastly, research in daily teaching and learning from sociocultural perspectives shows a sporadic presence in the literature [14; 30; 70] and calls for more evidence. To address these gaps, this study sought to answer the main research question — How do teachers transform the subject content to support student learning in classrooms? The study adopts a Vygotskian view of teachers' role in subject content transformation and looks into texts in the literature that guide a response to this central question.

Teaching subject content from sociocultural perspective

Vygotsky's reference to the relationship between the students' everyday experiences and abstract concepts

through the use of psychological tools and to the role of the knowledgeable other in merging that understanding involves three things interrelated and relevant to the study: the use of tasks as mediating tools; the role of knowledgeable other, that is the teacher and peers in mediating learning within the ZPD; and the relationship of tasks and ZPD in the students' conceptual progression in learning. "Tasks form the basic treatment unit in classrooms" [23] in terms of leading students to selectively derive from their experiences and acquire information and operations required to accomplish the tasks [23]. Recently, researchers [25; 58; 65; 68; 69] have again called attention to subject tasks; taking clues from their work, an academic task must involve both dialogic (interaction with peers and a teacher as others) and dialectic (task as other; external activity reflected in the internal consciousness) processes that assist students gain insights into the thinking of others and into their own. The role of the teacher then lies in building a relationship between the psychological and social, the key tenet of Vygotsky's work by means of practices that matter in culture [25; 63; 69; 79]. The studies [2; 13; 20; 40; 47; 70] demonstrate how teachers' use of tasks accompanied by initiated classroom dialogue assisted them to guide and support their students' learning.

Teachers' knowledge, learning and expertise

Four other key areas relevant to the study include the following: Firstly, research on conceptualisation of teacher content knowledge has highlighted several types of knowledge that teachers use to function in their profession: the concept of pedagogical content knowledge (PCK) [64] incorporates both understanding of the structure of the subject matter (content knowledge) and teacher's pedagogy, that is, ways to represent the subject content to maximise its comprehensibility for student learning; curricular knowledge [64] refers to the curriculum, guidelines and resources that the government and the school provide to the teachers; knowledge of self and knowledge of learners [74]; PCK as a collection of teacher professional constructions that constitute knowledge of teaching specific topics that an experienced teacher builds and accumulates [36]; and personal practical knowledge, a notion captures the idea of experience in the way we refer to teachers as knowledgeable and knowing persons [18], which takes the form of images, metaphors [16; 19], emotional aspects [35] and beliefs that determine teachers' actions in class that shape teaching and learning [41; 45; 72].

Secondly, different authors view reflective practice differently. For Dewey, education has a social function that requires transformation of the quality of experience whereby the immature becomes mature [21]. Schön draws attention to the notions of reflection-in-action which involves the teacher learning in the situation the emerging problems in students' understanding of the content, and reflection-on-action which includes drawing from experiences after the action is over and addressing the unresolved problems [62]. Such reflections, according to Connelly & Clandinin, become part of the personal practical histories of teachers that shape their beliefs and have the possibility of informing their future course of action in the classroom [18]. Korthagen gives prominence to changes that emerge from teachers' being [41], and Freire focuses on transforming practice in which the teachers play a crucial role from shifting from a banking concept of education to an emancipatory approach to education [31; 32].

Thirdly, research has identified three conditions for effective formative assessment (FA), and these are: the quality of interaction [11]; students' involvement in active learning; and the teachers' use of tasks that interest students [81]. Teachers' use of task and dialogue might involve students in self-assessment or peer assessment [81]. However, such kind of assessment is more common in higher education [33; 54] than school education [71].

Lastly, over time, research on teacher expertise has undergone changes. From viewing teacher expertise as something stable [7; 26; 29; 37; 55; 59; 67; 73; 74] to viewing it as continually working on problematising daily routines [6]; as stagewise learning over time [1; 24; 26]; as embedded in teachers' beliefs about their students' learning [3; 49; 72]; and to adaptive nature of teacher expertise [84] that partially connects teacher expertise with the time period view of it, which is problematic as sociocultural contexts are implicitly referred to changing political contexts and education policies that a teacher might have experienced during 10—15 years of teaching and might have worked with almost all situations [34].

Theoretical framework

In examining the micro and macro processes involved in classroom teaching and learning, the study utilised several interrelated sociocultural concepts. Firstly, Vygotsky is interested in development as mediated process. For him, the relationship between psychological tool and behaviour has serious implications for instruction. There are two faces of mediation that assist in enhancing the child's performance: by human assistance and by introducing mediating tools [15]. Vygotsky defined the role of the human mediator in his Genetic Law of Cultural Development [75], according to which human cognition is inherently social; transformation happens when other-regulation is changed to self-regulation. The former involves activities mediated by other people or cultural artefacts, while the latter involves appropriation and reconstruction of the cultural artefacts to regulate or own activities. Secondly, influenced by Vygotsky's work, the concept of figured worlds [38] helps in understanding how an individual participates in the culture in which he or she is positioned to turn it around to make way for oneself as a knowledgeable and committed person; it calls for higher order organisation of one's thought; and involves processes by which human beings as both collective and individual move from one social and cultural reality to

another. Hence, such worlds have developmental history; intentionality in their use; are attributed with some meaning and are both a material and concept [17; 38; 39; 75; 78]. Thirdly, Vygotsky's work was concerned with the micro teaching and learning processes. However, it does not refer to how institutions (schools) regulate learning, shapes the way in which individuals (teachers) work within them. This aspect was addressed by Bernstein who was concerned with "the general principles underlying the transformation of knowledge into pedagogic communication" [9, p. 25] through the process of recontextualisation which he suggested, "selectively appropriates, relocates, refocus and relates other discourses to constitute its own order" [9, p. 33]. However, such a structure of transfer that Bernstein focused on is "unidirectional transmission of influence from institution to individual" [80, p. 259] and runs the risk of obviating the active agent, a teacher with a specific role in the classrooms and in taking the guidelines forward, from the process [80]. Fourthly, deriving from Rosenblatt's theory of transaction, which states that there is always some kind of transaction that goes on during the reading event in which meaning is constructed between the reader and the text, between the individual and the society [56], I view teaching as a meaning making process which includes teachers as readers and writers, reading the classroom dialogue as text and writing that as an understanding derived from such a reading as an internal text. Lastly, deriving from research on reflective practice [18; 62], the teachers utilise the classroom transaction as a psychological tool for their professional growth of practice. Taking from Schön: (a) within the classroom when the action is going on, in which the teacher interprets and responds to emerging situations; and (b) from outside the classroom after the action is done, by which the teacher pays selective attention to the things to review some of the decisions. Taking from Connelly and Clandinin: (c) reflect on their past teaching experiences and derive from those to inform their future aspirations and role as a teacher.

Methodology

A qualitative multicase study was employed to examine several cases in diverse settings [48; 50; 66] with an aim to study the phenomenon exhibited by the cases [66].

Participants and data collection

Eight teachers, four each of English and mathematics, were observed from five different schools in Oxfordshire, England. They were selected based on their consistent performance over three years or more and recognised for their exemplary work by their school community [53].

The data were collected in three stages for each lesson observed. These stages include: Think aloud protocol before the delivery of the lesson in which the teachers were asked to think concurrently while planning the lesson [27; 28]; lesson observation [82] (Wilkinson and Birmingham, 2003) and video recording; and video stimulated recall and semi-structured interviews after the lesson [22; 42; 44; 57; 60]. 2—3 lessons per teacher were observed.

Data analysis

The data were transcribed and organised into a single document with 2—3 complete lessons per teacher. Then narratives of teaching and learning were written that included teachers' reasoning during lesson planning and in-the-moment decision making; these were then thematically coded. Both narratives of lessons and thematic coding were used during within-case and cross-case analysis; the latter will be discussed in this article.

School descriptions and contexts that emerged during analysis led to framing boundaries of description using Bernstein's sociological theory, the principles of classification and framing [8]. Classification refers to the boundary strength between what is classified while framing refers to a message system of pedagogy, that is, how interaction that takes place in a social relation will be regulated. The framework of description was divided into three parts, namely, Institutional Context, Teacher and Classroom Practice, with further subparts (tab. 1 and tab. 2, which is an example of Framework of Description from an English teacher, Linda). Bernstein, in his analysis of discourse, referred to horizontal and vertical discourses [9]. The data showed instances of vertical discourse that reflected the teachers' hierarchical position, implying its relation to the degree of control that a teacher might have.

School descriptions

The schools[1] in which the participant teachers worked formed the historical context of their teaching and learning situation. The participant teachers taught in secondary schools situated in different locations in Oxfordshire, England: Spring Hill (Lisa, English teacher) and Forest Lake Schools (Tyler and Jeffrey, English teachers; Alex, maths teacher) were both located in inner-city; Whitewater School (Justin, maths teacher) was an academy, a sponsor-led school, situated in a market town located in an area with high levels of social and economic deprivation; Lakewood School (Linda, English teacher) was an urban city all-girls' secondary school converted into an academy; and Valley View school (Lauren and Steve, maths teachers) was a co-educational secondary school situated in an outer-city school with students coming from both affluent and economically deprived families.

Findings

The qualitative thematic cross-case analysis identified five themes that reflect how the participants played a mediational role in subject content transformation.

[1] Names of schools and teachers are pseudonyms.

Table 1

Framework of description

Institutional Context	
Theory of instruction	Refers to a good teaching policy by means of which the school regulates the teaching and learning discourse. It includes expectations from the teachers in terms of teaching and from the students in terms of their own learning.
Scheme of Work (SoW)	Provides a yearly division of the content to teach. These can be long-term schemes covering the schedule for the entire academic year or a short-term which covers a half term unit of 6—8 weeks.
Teaching resources	The resources used for teaching the subject as provided by the school or created by the teacher.
Duration of the lesson	The time allotted for the lessons in a school.
Class sets	Grouping the students according to their attainment.
Discipline in school	The school behavioural policy that rules conduct for the students before, during and after school, and the responsibilities of the teachers concerning it.
Teacher	
Vertical axis	Refers to the power dynamics, the influence on social relations and communication among the teachers in the school or within the department.
Classroom Practice	
Instructional practice	These are discursive rules that include selection, sequence, pacing, and criteria (of evaluation).
Instructional context	The ways in which tasks are distributed and the students grouped within classes.
Regulative practice	These are hierarchical rules that regulate learning in the classrooms. Implicit rules that the students follow and the instructions that teachers give to their students in relation to the task help in managing the lessons.
Everydayness	The unique culture of the classroom that forms over time; element of trust between the teachers and the students.

Table 2

Example of Framework of Description for Linda, an English teacher at Lakewood School

Institutional Context	
Theory of instruction	A good teacher is the one who puts the systems and the structures in place. All the teachers are expected to use the gold, silver and bronze success criteria. If a member of faculty walks into a lesson with the criteria not displayed, then teaching will be classed as not a good teaching.
Scheme of Work (SoW)	The department informed the teachers of the texts to use.
Teaching resources	Linda used the success criteria as lesson objectives and to regulate students to think of the level they might want to achieve.
Duration of the lesson	One hour lesson.
Class sets	Top set, based on exam results from the previous year.
Discipline in school	No discipline issues.
Teacher	
Vertical axis	Strict hierarchy existed. Teachers were required to follow the guidelines set by the department and higher management whether working collaboratively or when teaching individually.
Classroom Practice	
Instructional practice	Linda assigned quotes from a poem to the groups to deconstruct. These were later swapped amongst groups.
Instructional context	There were eight groups with four students in each group.
Regulative practice	Linda roughly timed the tasks and grouped the students according to their ability. The success criteria regulated both classroom dialogue and students thinking.
Everydayness	Students worried for their grades and were often given confidence by their teacher that she will assist them in reaching their goals. The success criteria were the guiding principle for action in the class.

Task design

The data analysis indicated that the participants engaged in teaching and learning in three phases involving inquiry, organising and managing, which, in combination, involves six elements of task design (tab. 3). The inquiring phase includes context and intentions. Example, Linda, in teaching poetry to top set Year 9 students to structure their response to a GCSE type question, uses the success criteria in the form of three medals: "We have bronze, silver, golds, and the idea is that whatever they [students] do in the lesson, they'll get somewhere. They'll get a medal" (Linda, during lesson planning).

The next phase involves organising intentions which includes teachers' use of *figured worlds* and *selection of artefacts*, which is the use of resources drawn from various sources and used to conceptualise the pedagogical approach. Example, Lauren, a mathematics teacher, in teaching "Bearings" to her Year 7 students at Valley View School, used

different websites: the one recommended by her department (STEM) and the other on her own accord (Diagnostic Questions) to engage the students with misconceptions.

The third phase is an extension of the organising phase and involves the management of task execution: involves making *learning objectives* known to students either explicitly or implicitly and includes *task distribution, instruction and time management*. Example, Tyler managed teaching the concept of immigration when teaching American poetry from 1840s to 1940s in a forty-minute lesson. He used three poems that would help him put the novel (*The Great Gatsby*) that the students were reading for the term on the "historical continuum" and provide them with different perspectives about the concept: "I deliberately picked three examples, one very pro-immigration, one very anti-immigration and one from the perspective of an immigrant" (Tyler, during the interview). He formed three groups, assigned one poem to each group to analyse in detail and instructed them to give a quick reading to the other two poems.The students were required to share their critical reading during whole class discussions. He gave students a space to lead their learning, both by presenting their analysis and adding their critique to discussions, as per his school policy.

Practices of formative assessment

Task design paved the way for teachers to practice formative assessment (FA). The teachers created opportunities for themselves to know their students' thinking, where their students were in their learning of concepts, or of any cognitive conflict through the use of tasks. The participants employed several tools of FA (as shown in tab. 4).

Recontextualisation

Recontextualisation can be defined in terms of the ways in which the participant teachers framed, reworded or provided a different situation of a similar example of the content so that their students were able to form a conceptual understanding of it (as shown in tab. 5).

The theme is closely related to the theme of FA. Having used different ways of FA to identify learning gaps and misconceptions, the teachers then used these methods (tab. 4) to recontextualise the subject content for student learning. Learning gap here refers to the distance between teachers' intentions for students' learning and where the students were in relation to that. Misconceptions refer to the existence of erroneous understanding or an idea that makes sense to the student but is faulty. In responding to gaps or misconceptions,

Table 3

Elements of Task Design

Six Elements of Task Design	
Context	Refers to teachers' repertoire of knowledge that supports them in their thinking about creating learning situations. It includes teachers' knowledge of institutional demands that regulate teaching and learning in classrooms and therefore, the nature of talk; teachers' awareness of their students' prior learning of concepts; knowledge of Schemes of Work provided by their departments; and their past pedagogical experiences including their education and training.
Intention	Gives direction to the teacher. Refers to teachers' thinking about what they want their students to learn and why they want that.
Figured world	Refers to teachers' imagining and organising a near future classroom experience in bringing about a change or shift in students' thinking; deriving from their intentions.
Selection of artefacts	Use of resources as both material and concepts for teaching and learning. These artefacts can be drawn from teachers' own collection of resources, derived from websites, borrowed from colleagues or handed to the teachers by their departments.
Learning objective	Serves as a guide to students. It refers to what teachers want their students to be able to do as a result of learning. This is closely related to intentions but becomes explicit during the teaching and learning situation. Teachers' intentions are presented to students in the form of a topic to learn or as clear set of guidelines, both verbal and/or explicitly written, about what they should be able to accomplish.
Task distribution, instruction and time management	Refers to teachers' division of tasks among students accompanied by information about how they are expected to carry out a task; gives students direction and sense of time; helps teachers organise learning in an allotted time.

Table 4

Practices of Formative Assessment

Practices of Formative Assessment	
Moving around the classroom	Refers to teachers' purposeful physical movement in the class when students are set at group or pair or individual work to listen to their discussions and assist them.
Asking questions	Refers to teachers putting questions to students to elicit information from them or to direct their thinking; students' verbalisations serve as a source of information about their present level of learning.
Collaborative problem-solving	Teachers solve tasks along with students to make visible to themselves how the students might have reached an answer and, at the same time, helps students reflect on the reasoning that they provide and participate in the ongoing discussion.
Other ways of assessment	Teachers' use of tools to help themselves derive some pattern to assess the success or struggle of students in completing tasks.

teachers adjusted instruction with the aim that their students might see the content from a different angle and make sense of it for themselves. Example, according to Lauren, "When it came to the conceptual understanding of the concept (Bearing), though they were practising it and saying it when asked, it had not yet come from them" (Lauren, during the interview). In the third lesson on the topic, Lauren invited her students to imagine themselves as a member of a "Quick Reaction Alert Group" which gives them "the power to deploy an aircraft at a moment's notice." They had to prove that they were "a worthy member of the team" (during the classroom observation). The task required "a lot of visualisation on their behalf because they needed to in their heads picture what this bearing might look like. It involved a lot of geometrical reasoning, estimating..." (Lauren, during the interview).

Reflective practices

The teachers reflected for designing tasks, reflected while teaching, and reflected on the teaching and learning that took place (as shown in tab. 6). A key finding was that a point of focus of their reflections was their students' responses and their own teaching.

Reflective practice emerged as a constituent of continuous action and was intricately weaved into FA and recontextualisation that, at times, it was difficult to segregate it from the other two themes; it also informs knowledge base and influences task design.

Knowledge base

This theme differs from the previous four in that that teachers use and build on their knowledge base while designing tasks, when making formative assessments, when recontextualising the content and when they reflect on their thinking. Hence, teachers draw on and from their existing knowledge base and further assimilate new pedagogical experiences. The different types of knowledge bases are presented in tab. 7.

There exists an intricate relationship between the five themes that emerged from the data analysis. For instance, recontextualisation is a consequence of FA; reflective practice sometimes works in between FA and recontextualisation, sometimes occurs after the classroom situation wherein teachers might reflect on their teaching, and sometimes comes before the classroom situation when teachers reflect on their thinking in designing tasks; and, finally, in engaging with several pedagogical processes, teachers continuously draw from their knowledge base and add to it and thus contribute towards their own personal growth of practice.

Table 5

Ways of Recontextualisation

Ways of Recontextualisation	
Teachers' explanations	Teachers' statements or narrations giving out critical information or revealing facts, giving details or describing situations; rephrasing students' responses.
Creating imaginative situations	Transporting students into a different context or physical reality and assigning them a different role in it.
Drawing connections	Assisting students in making connections between different parts of texts, among different responses from their peers; assisting them in reflecting on their own responses by rephrasing their verbalisations.
Breaking into smaller steps	Teachers divide a lengthy task into smaller manageable steps and give critical information about a concept in parts.
Provide a model response	Teachers provide an example of a response either by working along with the students or by giving them an example to imitate or by giving them an example of a similar situation that students are required to accomplish.
Provide suggestions for thinking	Direct the students to something particular to make them think differently about a situation or a problem; might be phrased as a question.
Students recontextualise the content	Students' verbalisations serve as a means of re-explanation of the content at hand for other students as well as for the teacher. These verbalisations are in the form of individuals summarising their understanding of the content or students' collective interpretation of the content.

Table 6

Reflective Practice

Reflective Practice	
Reflections on students' understanding of the subject content	Refers to teachers' analysis of students' current level of learning by means of their responses in order to take the next step towards supporting them in their learning; teachers' thinking of the next element that they might require to engage students with; these reflections take place in-the-moment.
Reflections on the challenges interpreted for future planning	Teachers recognise that students are still not where they intended them to be in their learning; recognise the gaps in their learning and think of the ways in which they might address those gaps in the subsequent lesson or distant lessons.
Self-assessment: Self-critique for their own teaching	Teachers identify gaps in their action for students' learning; their display of discomfort in having missed something they could have possibly used for teaching; their awareness of the measures they could have possibly taken.
To ascertain their beliefs	Re-evaluate their thinking in relation to assumptions they hold; might consolidate the existing assumptions or cause a stir.

Discussion

The analyses conducted in this study focused on the mediational role that teachers, whether of English or mathematics, play in supporting their students in their learning. Teachers continually engage with pedagogical processes represented as four intertwined or interconnected phases (fig. 1).

The phases are discussed as follows:

Phase One: Reflect on their personal sense of experiences

The first phase of subject content transformation involved the teachers working by means of a regulatory discourse of the institution and by drawing from several resources in making classroom teaching and learning decisions. Their knowledge base ranged from their personal sense of experiences as a student in school, university or as a teacher trainee to their personal sense of experiences as a teacher, which includes a combination of several sources: their understanding of their *institutional demands* defined in the form of "good teaching" processes along with their sense of their past diverse experiences inclusive of their *knowledge of pedagogical structures*; *knowledge about students*; their *beliefs* about teaching and learning; their *interaction with others*, for instance their colleagues, mentors, professors, tutors, school teachers, students, literature and subject websites. The sources, in combination, form the contextual element, one of the six elements of Task Design. The teachers, thus, worked by drawing from several resources in making classroom teaching and learning decisions which aligns with previous studies [18; 64; 72; 74] and also by means of regulatory discourse of the institution which this study demonstrates.

Phase Two: Design tasks and build figured worlds

The second phase included *designing tasks*; this phase works in tandem with the first phase. In designing tasks, teachers fostered a balance between their situatedness and their intentions for students' learning. Teachers used tasks to introduce concepts and start the learning activity. The teachers framed the tasks in a specific way to prompt their students to think in a particular direction or at a certain aspect, thus, implying that they not only attached their intentions to the tasks they assigned, but they also purposefully steer their students' reflections and influence

Table 7

Teachers' Knowledge Base

Teachers' Knowledge Base	
Knowledge of context	The intricate link between institutional demand, departmental policy, SoW and national examinations.
Knowledge about students	Teachers' knowledge about students' interests, their learning difficulties, their prior learning or cumulative learning, their learning in other subjects and their collective characteristics.
Knowledge from interaction with the other	Teachers' knowledge acquired over time in relation to their interactions with others in the teaching community: their colleagues; their academic tutors; their own teachers when they were at school; their students; their reading of the literature; and their memberships to various teaching websites.
Knowledge of self	Their beliefs about teaching and learning or about the subject they teach, their feelings, their identity as knowledgeable persons or of their roots.
Knowledge of pedagogical structures	Teachers' knowledge of the type of inquiry or cultural practice with which to engage students in their learning of subject content.

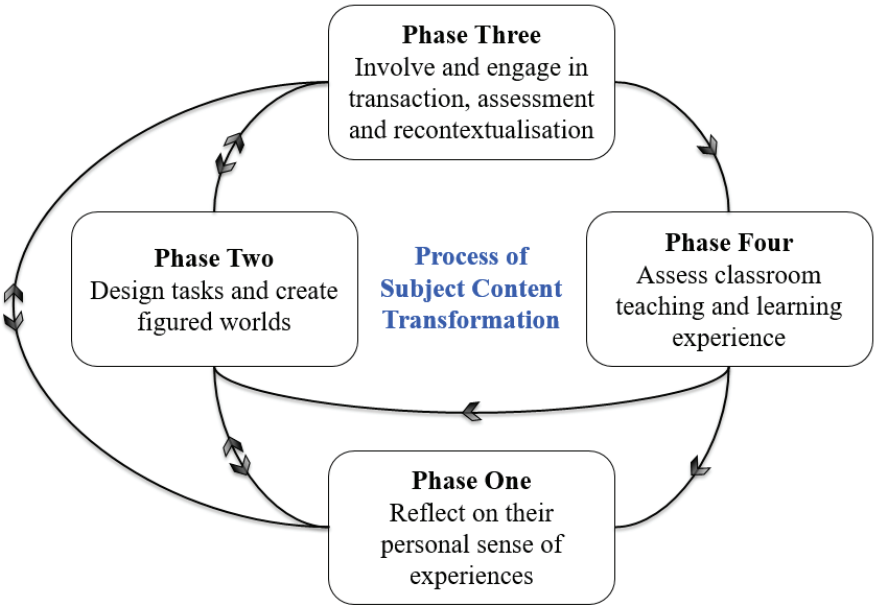

Fig. 1. Process of Subject Content Transformation (PSCT)

their selection process [23; 25; 56]. For instance, one of the mathematics teachers, Steve, had given a "calculate the power" task to the students, he intended that they understand the Base 10 system and eventually use that to reflect on their thinking to understand the other base systems.

The study extends the application of the concept of figured worlds [38] as proposed in anthropology to daily teaching and learning situations. In a teaching and learning situation, *figured worlds* functioned in two ways: as mediational means for teachers to get through an inherent contradiction of teaching subject content to their students; they also serve as psychological tools to invite students as critics to enter into a new physical reality in order for them to contribute toward their own learning of subject content. Such imaginary situations provided them with an opportunity to: visualise the way they want to see their students engage with the tasks; think of the groups or individuals that they will have to reach out first; give them access to possible students' responses to tasks and think ahead of the ways in which they might respond to those responses; and prepare for an unexpected contingency when they might think of changing or modifying their plan. The use of figured worlds thus assisted teachers in creating relative experiences for their students for them to think about and think against. In this way, the experiences created functioned as both external and internal, that is, coming from the authority of a teacher and used as psychological tools to mediate students' learning [76; 77], and whereby the students were able to make some form of connection or relation between their daily regularities or experiences with new knowledge presented to them [21; 56].

Phase Three: Involve and engage in transaction, formative assessment and recontextualisation

In this phase, teachers implement the tasks designed and enact figured worlds. The teachers in this phase were highly involved in their students' learning, and that was where the concept of the ZPD [75] became evident. ZPD functioned both as a diagnostic tool and a means to understand the development of academic or abstract concepts. The question then is how teachers assess their students' learning of abstract concepts and their higher order psychological processes. This research demonstrates that the way the teachers designed the tasks as material and concept [17] accompanied by social interaction between teacher and students and among students, gave the teachers the scope to formatively assess their students' progress in learning [25; 69]. The interaction around tasks provided scope to the teachers to start with the reading and writing processes [56], reading the text of students' responses and making sense of that to be able to recontextualise their students' thinking. The teachers used different practices of FA (Tab 3) to assess where their students were in their learning and think about what needs to be done as a consequence — in terms of explanations, further questioning, making them think on a certain aspect or use more tasks; assist their students toward their potential level of development [75]; and how they might adapt their teaching to meet their students' learning needs [11; 12]. In doing so, teachers drew from their past similar experiences or from their repertoire of resources to reflect upon the learning needs of their students. Peer assessment and student self-assessment were not common amongst the teachers [71], except in the case of Linda, where the routine need of student self-assessment came from top-down in the form of success criteria.

Furthermore, social institutions, which are schools in this study, impacted the work of teachers [10] by providing them with schemes of work and guidelines of the "good" ways of teaching (Phase one). The process of recontextualisation, however, does not end with SoW. Rather teachers add to these schemes their knowledge and intentions to design tasks (Phase two) and, thereby, further impact the content that the students learn and their learning experiences; which, in turn, creates ripples of discourse and establish a culture of learning, the kind of teaching valued (Phase three). In the light of the new understanding of the concept of recontextualisation, combining both linguistic [43] and sociological aspects [9; 10], I define the term "recontextualisation" in terms of (a) directionality: recontextualisation is bi-directional as that involves both teachers and students as active participants in the learning process and in shaping the content; and which involves teachers as active participants in shaping the content by reflecting upon their intentions and pedagogic decisions (b) revisitation: recontextualisation is a way in which the teachers assist their students to form a conceptual understanding of the subject content by revisiting the same concept using a different context or different choice of words with similar context.

Phase Four: Assess classroom teaching and learning experience

In this phase, the teachers made assessments about students' progress and their own teaching based on their reflections on their interactions with their students. In this sense, the findings align with the notions of reflection-in-action and reflection-on-action [62] and with the concept of personal practical knowledge [18] that the teachers build over time through their reflections on their classroom experiences.. The teachers assessed the progress of their students and their future needs; they reflected on their beliefs and either further cemented those or reviewed those; and critically self-evaluated their teaching based on their performance in the classroom. However, the analyses also revealed that teachers reflected in further ways than suggested in research [62]. The teachers reflected while designing action as well and which can be termed as reflection-for-action. The teachers reflected before entering the teaching and learning situation, that is, when they think of their intentions for students' learning of scientific concepts, imagine the way action might unfold, think of pedagogical structures they might use or think of ways in which to balance their beliefs, teaching of subject content and institutional regulatory policy.

Hence, PSCT involves a continuous flow of thought formation and transactional action amidst different phases; and it is not sequential in nature. Phase One and Phase Two work together, backward and forward. Task design and figured worlds created in Phase Two are enacted in Phase Three. In Phase Three, which is a teaching and learning situation, teachers reflect on their personal sense of experiences (Phase One) for making in-the-moment decisions; sometimes, they also think of the tasks (Phase Two) they might have to introduce in their subsequent lessons when reflecting on their students' responses. In

Phase four, teachers use their interactions with their students in Phase Three to assess their teaching. Such assessments then become a part of their personal sense of experiences (Phase One) and which they also use to design tasks. Teachers are thus involved in continuous action and reflection on their own teaching to derive from to support their students' learning of academic concepts.

Conclusion

The study contributes towards an understanding of teachers' mediational role in supporting their students' learning by providing a model of the four phases of Process of Subject Content Transformation (PSCT). The model highlights the intertwining aspect of several elements, highlighting the ways in which the teachers mediate and shape the quality of learning for their students. The elements are previously known in research; however, these are presented mainly as separate entities. This study demonstrates that the teachers engaged and were involved with several pedagogic processes in unison and not piecemeal in supporting their students in learning the academic concepts.

The study has several implications for different stakeholders. Firstly, for teacher educators to consider exposing their student teachers to various theoretical stances to create possibilities for them. Secondly, for teachers to think of the demands of the institutions in which they work and how they might use that knowledge in shaping teaching and learning. Thirdly, for schools to step back, rethink and re-question their role as an authority in creating affordances or constraints through the artefacts that they provide to their teachers. Lastly, for researchers to risk combining different theoretical perspectives and ways of analysis to explore a phenomenon of their interest. Further research may examine the four phases of PSCT in the light of understanding teaching across contexts, the number of years of teaching experience and teaching online. The studies focusing on task design have a high potential in throwing further light on teachers' thinking processes.

References

1. Alexander P.A. The Development of Expertise: The Journey from Acclimation to Proficiency. *Educational Researcher*, 2003, Vol. 32 (8), pp. 10—14.

2. Alexander R. Towards dialogic teaching: Rethinking classroom talk. Cambridge: Dialogos, 2004.

3. Alterator S., Deed C., Prain V. Encapsulating teacher expertise in action. *Teachers and Teaching*, 2018, Vol. 24 (4), pp. 450—460.

4. Anthony G., Hunter J., Hunter R. Prospective teachers development of adaptive expertise. *Teaching and Teacher Education*, 2015, Vol. 49, pp. 108—117.

5. Beltramo J.L. Developing adaptive teaching practices through participation in cogenerative dialogues. *Teaching and Teacher Education*, 2017, Vol. 63, pp. 326—337.

6. Bereiter C., Scardamalia M. Surpassing ourselves: An inquiry into the nature and implications of expertise. Illinois: Open Court, 1993.

7. Berliner D.C. In Pursuit of the Expert Pedagogue. *Educational Researcher*, 1986, Vol. 15 (7), pp. 5—13.

8. Bernstein B. Code Theory and its Positioning: A case study in misrecognition. *British Journal of Sociology of Education*, 1995, Vol. 16 (1), pp. 3—19.

9. Bernstein B. Vertical and horizontal discourse: An essay. *British Journal of Sociology of Education*, 1999, Vol. 20 (2), pp. 157—173.

10. Bernstein B. Pedagogy, Symbolic Control and Identity: Theory, Research, Critique (Revised Edition). Lanham, MD: Rowman & Littlefield, 2000.

11. Black P., Wiliam D. Assessment and classroom learning. *Assessment in Education: Principles, Policy & Practic*e, 1998, Vol. 5 (1), pp. 7—74.

12. Black P., Wiliam D. "In Praise of Educational Research": Formative assessment. *British Educational Research Journal*, 2003, Vol. 29 (5), pp. 623—637.

13. Boukafri K., Civil M., Planas N. A Teacher's Use of Revoicing in Mathematical Discussions. In J.N. Moschkovich, D. Wagner, A. Bose, J.R. Mendes, & M. Schütte (Eds.), *Language and Communication in Mathematics Education*. Springer, Cham, 2018, pp. 157—169.

14. Brown R., Hirst E. Developing an understanding of the mediating role of talk in the elementary mathematics classroom. *Journal of Classroom Interaction*, 2007, Vol. 41 (2), pp. 18—28.

15. Chaiklin S. The zone of proximal development in Vygotsky's analysis of learning and instruction. In A. Kozulin, B. Gindis, V.S. Ageyev, & S. M. Miller (Eds.), *Vygotsky's educational theory in cultural context*. 2003, pp. 39—64.

16. Clandinin D.J. Classroom practice: Teacher images in action. Great Britain: Taylor & Francis (Printers) Ltd., 1986.

17. Cole M. Cultural psychology: A once and future discipline. Harvard University Press, 1996.

18. Connelly F.M., Clandinin D.J. Teachers as Curriculum Planners: Narratives of Experience. New York: Teachers College Press, 1988.

19. Connelly F.M., Clandinin D.J. Stories of Experience and Narrative Inquiry. *Educational Researcher*, 1990, Vol. 19 (5), pp. 2—14.

20. Counsell. Thinking, talking, writing: Collaborative reasoning in the secondary classroom. *Teaching English*, 2015, Vol. 9, pp. 41—44.

21. Dewey J. Democracy and education. Mineola, N.Y.: Dover Publications, 2004.

22. Do S.L., Schallert D.L. Emotions and Classroom Talk: Toward a Model of the Role of Affect in Students' Experiences of Classroom Discussions. *Journal of Educational Psychology*, 2004, Vol. 96 (4), pp. 619—634.

23. Doyle W. Academic Work. *Review of Educational Research*, 1983, Vol. 53 (2), pp. 159—199.

24. Dreyfus S.E. The five-stage model of adult skill acquisition. *Bulletin of Science, Technology and Society*, 2004, Vol. 24 (3), pp. 177—181.

25. Edwards A. Designing tasks which engage learners with knowledge. In I. Thompson (ed.), *Designing tasks in secondary education: Enhancing subject understanding and student engagement*. Routledge, 2015, pp. 13—27.

26. Enow L., Goodwyn A. The invisible plan: how English teachers develop their expertise and the special place of adapting the skills of lesson planning. *English in Education*, 2018, Vol. 52 (2), pp. 120—134.

27. Ericsson K.A., Simon H.A. Verbal reports as data. *Psychological Review*, 1980, Vol. 87 (3), pp. 215—251.

28. Ericsson K.A., Simon H.A. Protocol analysis. Massachusetts Institute of Technology, 1993.

29. Ethel R.G., McMeniman M.M. Unlocking the knowledge in action of an expert practitioner. *Journal of Teacher Education*, 2000, Vol. 51 (2), pp. 87—101.

30. Fisher R. Dialogic teaching: developing thinking and metacognition through philosophical discussion. *Early Child Development and Care*, 2007, Vol. 177 (6—7), pp. 615—631.

31. Freire P. Pedagogy of freedom: Ethics, democracy and civic courage (Critical perspectives series) [electronic resource]. Lanham, Md.; Oxford: Rowman & Littlefield, 1998.

32. Freire, P., Macedo D. Pedagogy of the oppressed. New York, NY: The Seabury Press, 2000.

33. Ginkel S.V., Gulikers, J., Biemans, H., Mulder, M. Fostering oral presentation performance: Does the quality of feedback differ when provided by the teacher, peers or peers guided by tutor? *Assessment and Evaluation in Higher Education*, 2017, Vol. 42 (6), pp. 953—966.

34. Griffiths M. Critically adaptive pedagogical relations: The relevance for educational policy and practice. *Educational Theory*, 2013, Vol. 63 (3), pp. 221—236.

35. Hargreaves A. The emotional practice of teaching. *Teaching and Teacher Education*, 1998, Vol. 14 (8), pp. 835—854.

36. Hashweh M.Z. Teacher pedagogical constructions: A reconfiguration of pedagogical content knowledge. *Teachers and Teaching*, 2005, Vol. 11 (3), pp. 273—292.

37. Hattie J., & Yates G.C. Visible learning and the science of how we learn. Routledge, 2014.

38. Holland D., Lachicotte W., Skinner, D., Cain. C. Identity and Agency in Cultural Worlds. Cambridge, MA: Harvard University Press, 1998.

39. Holland D., Fox G., Daro V. Social Movements and Collective Identity: A Decentered, Dialogic View. *Anthropological Quarterly*, 2008, Vol. 81 (1), pp. 95—126.

40. Ingram J., Pitt A., Baldry F. Handling errors as they arise in whole-class interactions. *Research in Mathematics Education*, 2015, Vol. 17 (3), pp. 183—197.

41. Korthagen F.A. In search of the essence of a good teacher: Towards a more holistic approach in teacher education. *Teaching and Teacher Education*, 2004, Vol. 20 (1), pp. 77—97.

42. Lincoln, Y.S., Guba E.G. Naturalistic inquiry. Sage, 1985.

43. Linell P. Rethinking language, mind, and world dialogically. Charlotte, NC: Information Age, 2009.

44. Mackey, A., Gass S.M. Second language research: Methodology and design. London: Lawrence Erlbaum Associates, 2005.

45. Männikkö I., Husu J. Examining teachers- adaptive expertise through personal practical theories. *Teaching and Teacher Education*, 2019, Vol. 77, pp. 126—137.

46. Marshall B. The write kind of knowledge in English. *Critical Quarterly*, 2003, Vol. 45 (4), pp. 113—125.

47. Mercer N. Words and minds: How we use language to think together. London: Routledge, 2000.

48. Merriam, S.B., Tisdell E.J. Qualitative research: A guide to design and implementation. John Wiley & Sons, 2015.

49. Meyer H. Novice and expert teachers' conceptions of learners' prior knowledge. *Science Education*, 2004, Vol. 88 (6), pp. 970—983.

50. Miles M.B., Huberman A.M., Saldaña J. Qualitative Data Analysis. A Methods Sourcebook (3rd ed.). Thousand Oaks, CA: Sage, 2014.

51. Mutton T., Burn K., Hagger H. Making sense of learning to teach: Learners in context. *Research Papers in Education*, 2010, Vol. 25 (1), pp. 73—91.

52. Mutton T., Hagger H., Burn K. Learning to plan, planning to learn: The developing expertise of beginning teachers. *Teachers and Teaching*, 2011, Vol. 17 (4), pp. 399—416.

53. Palmer D.J., Stough L.M. Identifying Teacher Expertise: An Examination of researcher's decision making. *Educational Psychologist*, 2005, Vol. 40 (1), pp. 13—25.

54. Parsons D. Formative assessment in discussion tasks. *ELT Journal*, 2017, Vol. 71 (1), pp. 24—36.

55. Píšová M., Janík T. On the nature of expert teacher knowledge. *Orbis scholae*, 2011, Vol. 5 (2), pp. 95—116.

56. Rosenblatt L.M. Making meaning with texts. Portsmouth, N. H: Heinemann, 2005.

57. Rowe V.C. Using video-stimulated recall as a basis for interviews: Some experiences from the field. *Music Education Research*, 2009, Vol. 11 (4), pp. 425—437.

58. Säljö R. Learning, theories of learning, and units of analysis in research. *Educational Psychologist*, 2009, Vol. 44 (3), pp. 202—208.

59. Sato M., Akita K., Iwakawa N. Practical thinking styles of teachers: A comparative study of expert and novice thought processes and its implications for rethinking teacher education in Japan. *Peabody Journal of Education*, 1993, Vol. 68 (4), pp. 100—110.

60. Schepens A., Aelterman A., Van Keer H. Studying learning processes of student teachers with stimulated recall interviews through changes in interactive cognitions. *Teaching and Teacher Education*, 2007, Vol. 23 (4), pp. 457—472.

61. Schmidt M. Learning from Teaching Experience: Dewey's Theory and Preservice Teachers' Learning. *Journal of Research in Music Education*, 2010, Vol. 58 (2), pp. 131—146.

62. Schön D.A. The reflective practitioner: How professionals think in action. Basic Books, 1983.

63. Schwab J.J. The structure of the disciplines: Meanings and significance. In G. W. Ford & L. Pugno (eds.), *The structure of knowledge and the curriculum*. Chicago: Rand McNally., 1964, pp. 6—30.

64. Shulman L.S. Those who understand: Knowledge growth in teaching. *Educational Researcher*, 1986, Vol. 15 (2), pp. 4—14.

65. Smagorinsky P. Teaching English by design: How to create and carry out instructional units. Heinemann, 2008.

66. Stake R.E. Multiple case study analysis. Guilford Press, 2006.

67. Sternberg R.J., Horvath J.A. A Prototype View of Expert Teaching. *Educational Researcher*, 1995, Vol. 24 (6), pp. 9—17.

68. Stylianides G.J., Watson A. The interplay between mathematics and pedagogy. In I. Thompson (ed.), *Designing tasks in secondary education: Enhancing subject understanding and student engagement*. Routledge, 2015, pp. 47—69.

69. Thompson I. Communication, Culture, and Conceptual Learning: Task design in the English classroom. In I. Thompson (ed.), *Designing tasks in secondary education: Enhancing subject understanding and student engagement*. Routledge, 2015, pp. 86—106.

70. Thompson I., Wittek A.L. Writing as a mediational tool for learning in the collaborative composition of texts. *Learning, Culture and Social Interaction*, 2016, Vol. 11, pp. 85—96.

71. Tiknaz Y., Sutton A. Exploring the role of assessment tasks to promote formative assessment in Key Stage 3 Geography: Evidence from twelve teachers. *Assessment in Education: Principles, Policy and Practice*, 2006, Vol. 13 (3), pp. 327—343.

72. Traianou A. Understanding teacher expertise in primary science: A sociocultural approach. *Research Papers in Education*, 2006, Vol. 21 (1), pp. 63—78.

73. Tsui A. Distinctive qualities of expert teachers. *Teachers and Teaching*, 2009, Vol. 15 (4), pp. 421—439.

74. Turner-Bisset R. Expert teaching: Knowledge and pedagogy to lead the profession. Routledge, 2001.

75. Vygotsky L.S. Mind in society. Boston: Harvard University Press, 1978.

76. Vygotsky L.S. Thinking and speech. In V. V. Davydov (ed.) & N. Minick (trans.), *L. S. Vygotsky, The collected works: General psychology* (Vol. 2). New York: Plenum, 1987.

77. Vygotsky L.S. The collected works of LS Vygotsky: The history of higher mental functions (Vol. 4). New York: Plenum, 1997.

78. Wartofsky M. Models. Dordecht: D. Reidel, 1973.

79. Wertsch J.V. Mind as Action. New York: Oxford University Press, 1998.

80. Wertsch J.V. [Review of book Pedagogy, symbolic control and identity: Theory, research, critique, by Basil Bernstein]. *Language in Society*, 1998, Vol. 27 (2), pp. 257—259.

81. Wiliam D. What is assessment for learning? *Studies in Educational Evaluation*, 2011, Vol. 37 (1), pp. 3—14.

82. Wilkinson, D., Birmingham P. Using research instruments: A guide for researchers. Psychology Press, 2013.

83. Yandell J. The social construction of meaning: Reading Animal Farm in the classroom. *Literacy*, 2013, Vol. 47 (1), pp. 50—55.

84. Yoon S. A., Koehler-Yom J., Anderson E., Lin J., Klopfer E. Using an adaptive expertise lens to understand the quality of teachers' classroom implementation of computer- supported reform curricula in high school science. *Research in Science & Technological Education*, 2015, Vol. 33 (2), pp. 237—251.

Трансформация предметного содержания сквозь призму психологии и социологии: исследование в графстве Оксфордшир (Великобритания)

С. Хан
Оксфордский университет, Великобритания
ORCID: https://orcid.org/0000-0002-9070-8218, e-mail: hi.soniakhan@gmail.com

В настоящей работе, с опорой на психологическое и социологическое знание, исследуется то, как учителя трансформируют предметное содержание для учеников в ситуации урока. В научной литературе, посвященной преподаванию, уделяется недостаточно внимания тому, какую роль играют макрорегулирующие контексты в формировании мышления учителя и, следовательно, в педагогике в целом. Выготский поместил в фокус научного рассмотрения ту опосредующую функцию, которую берет на себя учитель в процессе школьного обучения, используя различные психологические орудия, однако он не успел более глубоко изучить влияние социокультурных контекстов, в рамках которых осуществляется учебное взаимодействие. Чтобы восполнить этот пробел, мы обратились к работам социального теоретика и специалиста по социологии образования Б. Бернштейна: он утверждает, что способы, которыми институты регулируют социальные отношения внутри себя, неизбежно влияют на педагогические практики в данных контекстах. Далее было проведено исследование множества конкретных случаев (multicase study) из практики учителей английского языка и математики, работающих в средних школах графства Оксфордшир (Великобритания). Комплексный анализ случаев обнаружил связь между микропроцессами обучения и макрорегулирующим дискурсом. Также показано, что на педагогические решения, принимаемые учителями, влияет их собственное восприятие институциональной культуры, в рамках которой — и средствами которой — они осуществляют свою деятельность. Наконец, анализ высветил взаимосвязь между несколькими способами, которыми учителя опосредуют и направляют процесс обучения своих учеников.

Ключевые слова: опосредование, трансформация предметного содержания, обучение, социальная теория Бернштейна, Выготский.

Благодарности. Автор выражает признательность И. Томпсону и Г. Дэниелсу за их поддержку и помощь в истолковании социокультурных и социологических аспектов, а также В. Эллиотт за её ценные указания.

Для цитаты: *Хан С.* Трансформация предметного содержания сквозь призму психологии и социологии: исследование в графстве Оксфордшир (Великобритания) // Культурно-историческая психология. 2021. Том 17. № 2. С. 65—75. DOI: https://doi.org/10.17759/chp.2021170207

Information about the authors
Sonia Khan, DPhil in Education, University of Oxford, United Kingdom, ORCID: https://orcid.org/0000-0002-9070-8218, e-mail: hi.soniakhan@gmail.com

Информация об авторах
Соня Хан, PhD, Оксфордский университет, Великобритания, ORCID: https://orcid.org/0000-0002-9070-8218, e-mail: hi.soniakhan@gmail.com

Получена 15.04.2021
Принята в печать 01.06.2021

Received 15.04.2021
Accepted 01.06.2021