Educational Roles in Corpus-Based Education: From Shift to Diversification

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1. Introduction

There is a growing interest in using linguistic corpora for pedagogical purposes, judging by the upward trend of empirical studies on the subject the last two decades (see Boulton & Cobb, 2017, p. 363). Applying "[…] the tools and techniques of corpus linguistics for pedagogical purposes" has become known as 'data-driven learning' [DDL] (Gilquin & Granger, 2010, p. 359), a term that gained impetus through Johns (1991), who envisioned the learner as a researcher, the teacher as a director/coordinator of learner-initiated research, and the computer as an informant (pp.1-3). Thus, DDL is the direct applications of corpora in the classroom by teachers and/or learners (Leech, 1997; Römer, 2011). Many corpus scholars argue strongly for using corpora in the classroom, citing benefits such as access to authentic language and increased language awareness (Boulton & Cobb, 2017; Lénko-Szymánska & Boulton, 2015), student-centered discovery learning facilitating students' own language interests (Bernardini, 2004), and student autonomy and new learning skills (Boulton & Cobb, 2017; Cheng, Warren, & Xun-feng, 2003; Johns, 1991). DDL promises new types of data, new skills, and new directions for the learner. However, early DDL literature provides hands-on activities, but lacks descriptions of the broader picture of teachers' decision-making (Wicher, 2020, p. 31). Instead, the teacher's role is repeatedly challenged, while focus is put on the student. Boulton (2009) states, "It may even be, in some cases, that learning is more effective without a teacher, i.e. when learners discover things for themselves" (p. 37), while Gilquin and Granger (2010) suggest, "DDL […] requires that the teachers take risks, and agree to 'let go' and let the student take pride of place in the classroom" (p. 367). These propositions are made despite the fact that most instructors in DDL research are DDL scholars and not regular teachers (Vyatkina, 2016, p. 207), and that there are few qualitative pre-tertiary studies (Pérez-Paredes, 2019). The teacher's role is de-emphasized, and the students are pushed to the forefront; yet, these roles are often ill-defined. What is more, proponents of DDL make assumptions about the secondary school classroom that become problematic when trying to realize a mostly university-level tested approach with younger learners. This study problematizes some of these assumptions in light of student experiences and feedback and adds perspectives from inquiry-based education and student-centered teaching to establish a more nuanced understanding of educational roles in DDL.

Section 2 looks at the conceptualizations of teachers and learners in DDL and reviews theoretical perspectives on educational roles. Section 3 covers the research design, participants, data collection methods, and analysis. The interview data are presented in Section 4 and discussed in Section 5. Lastly, Section 6 concludes the paper by looking at implications and limitations of the research, and at future directions.

2. Educational Roles in Corpus-Based Education in Light of Pedagogic Theories and Previous Research

In addition to providing new learning activities and resources, DDL seeks to reconceptualize educational roles in terms of student-centered teaching and learning. The relationship between corpus-based education and pedagogic principles has been explored in recent literature; Meunier (2020) argues for constructive alignment in DDL, asking whether curriculum, teaching methods, and assessment tasks are "consistently and coherently aligned" (p. 13), while Wicher (2020) discusses DDL's fit with Task-Based Language Teaching. Following this trend, the current section draws on two pedagogic approaches similar to DDL – learner-centered teaching and inquiry-based education – as they offer better developed concepts of role taking and role acquisition.

2.1 The Teacher and the Learner in DDL

DDL is predominantly conceptualized as learner centered (e.g. McEnery & Xiao, 2011), as the approach "usurps the traditional roles of the teacher/researcher and student […]" with the teacher no longer a language expert responsible for teaching and research, but a facilitator, while the student becomes both investigator and learner (Cheng et al., 2003, p. 175). Ideas of lessened teacher control or even involvement appear to permeate the discourse (cf. Boulton, 2009; Gilquin & Granger, 2010 in Section 1) and can be traced back to early conceptions of DDL where Johns (1991) suggested that one could "cut out the middleman as far as possible [i.e., the teacher] and […] give students direct access to the data" (p. 30). The focus is firmly put on the student. For instance, Bernardini (2004) emphasized DDL's discovery learning aspect and student interests with the learner-as-traveler metaphor wherein students actively explore corpora in open-ended ways with the teacher no longer a limitless knowledge source (pp. 22-23). Similarly, Papaioannou, Mattheoudakis, and Agathopoulou (2020) reference the teacher-as-facilitator premise, stating: "the teacher is no longer the source or expert of all knowledge [but should provide] guidance and support when necessary" (p. 187), and emphasizing student discovery and responsibility over a passive recipient role: "The learner is an agent who investigates language, finds clues about the meaning and relations between linguistic items, and generate [sic] hypotheses regarding meaning and rules" (ibid.). In a study by Gatto (2020), students used the Web as a corpus while solving tasks, while the teachers acted as 'mediators' and 'supervisors' following a short introduction on quantitative evidence in language studies (pp. 114-115). Unfortunately, the mediator and supervisor descriptors were not elaborated on. Breyer (2009) argues that the teacher role has long been neglected in the DDL literature. She created a pre-service teacher course where teachers acted as both learners using and analyzing corpora, and teachers designing and assessing corpus-based learning materials, which lead to the teacher becoming a learner, guide, material designer, and mediator for novice learners (pp. 154-167). Thus, Breyer (2009) showed the many teacher responsibilities and requirements in a DDL setting and began to problematize vanishing teacher role in the DDL literature. Furthermore, it is argued that teachers need a basic corpus literacy in order to successfully integrate corpora in their classrooms, which entails being able to search, interpret, analyze, generalize, and extrapolate from the corpus data, as well as design teaching materials (Callies, 2019). Students would face many of the same requirements in becoming independent corpus users (see Lee, Warschauer, & Lee, 2020, p. 346). What is more, it is argued that teaching with corpora requires digital/technological, content, and pedagogic knowledge (Leńko-Szymańska, 2017; Meunier, 2020). Although these claims outline the requirements and expectations put upon both teachers and learners, they lack descriptions of how these principles are engendered and enacted in the process of acquiring and preforming different roles in the DDL classroom, an issue that becomes increasingly problematic when the discussion is moved to pre-tertiary education and based on assumptions about how roles are

developed and enacted in the pre-tertiary classroom. In Section 2.2, two pedagogical perspectives are presented that can inform and diversify the conceptualization of roles in DDL.

2.2 Perspectives from Learner-Centered Teaching and Inquiry-Based Education

DDL, inquiry-based approaches, and student-centered teaching share many features, and among these are a constructivist foundation, learner-centeredness, and the use of researcher-emulated processes by the learners. These perspectives offer a more nuanced framework of educational roles, from which DDL can benefit.

Learner-centered teaching "[…] shifts the role of the teachers from givers of information to facilitators in student learning" (Darsih, 2018, p. 33). According to Weimer (2013), this shift includes increased student discovery, problem-solving, and peer- and self-assessment, while the teacher does less lecturing intended to transfer information and instead prioritizes preparation, positive learning climates, student evaluation, and concrete modeling of the learning process (pp. 72-84). Doyle (2011) argues that the teacher-as-facilitator role means "providing [students with] an environment for engagement; a set of resources such as questions, articles, research findings, problems, and/or cases to engage with; and using assessment tools that provide the learning with meaningful feedback" (p. 52), all the while encouraging full participation, mutual understanding, and shared responsibility (p. 53). These principles provide concrete aspects of the teacher's roles in learner-centered classrooms.

Moreover, inquiry-based learning involves observing, posing questions, reviewing evidence, investigating, predicting, and using tools to gather, analyze, and interpret data (The National Research Council, 1996, p. 23) and "learning through question asking based on curiosity and interest" (Walker & Shore, 2015, p. 3), all of which align well with the principles of DDL. Taking on the inquiry role as a teacher means mastering these skills and fostering them in one's students, who in turn must adopt them. Walker and Shore (2015) propose a four-stage process of role acquisition for both students and teachers (pp. 7-10). The first stage is *exploration*, where students and teachers familiarize themselves with the expectations of an inquiry-based classroom, such as students' initiative taking, teamwork and creativity. After exploration comes *engagement*, where students "formally adopt and engage in an inquiry student role" (Walker & Shore, 2015, p. 8). In this stage, students can create questions, take initiative, discuss, organize information, and interpret data independently and collaboratively (ibid.). The third stage is *stabilization*, in which the student or teacher are committed to the changes that come with the approach. Here, conflicts felt due to traditional role habits have been resolved, and teachers and learners "[…] positively value collaboration, are comfortable with problems that are not well defined, look for patterns across knowledge areas, think imaginatively and critically, and acknowledge multiple solutions to problems" (Shore et al., 2009, quoted in Walker & Shore, 2015, p. 9). In the final stage, *diversification*, students and teachers "[adopt] additional and varied roles within the classroom" (Walker & Shore, 2015, p. 9). For instance, students can take the role of teacher, team leader, hypothesizer, presenter, audience or explorer (ibid.). Clearly, reaching the final stage entails great versatility and flexibility from all participants to enable them to take on different roles when it is required and/or fruitful. The concepts of stabilization and diversification could be what is required to reach a normalization of corpus application in schools, as discussed by Chambers (2019), i.e. when corpus consultation has become second nature to the language learners.

The shortcomings in the conceptualization of roles acquisition and enactment in DDL, as outlined in subsection 2.1, may thus be alleviated by principles from inquiry and learner-

centered teaching. Examining DDL in light of these principles and students' actual opinions and experiences also enables us to highlight and problematize some of the assumptions in the DDL literature about the secondary school classroom. The following two research questions are posed:

1. How do DDL proponents' assumptions about the upper secondary classroom and its educational roles align with the experiences and opinions of students?
2. How can perspectives from inquiry-based education and student-centered teaching inform the conceptualization to educational roles in DDL?

3. Methods and Materials

The present study draws on student interview data from a case study wherein multimodal corpora designed for pedagogic purposes were integrated into two first-year upper secondary school classes in collaboration with their regular English teacher. As shown in Table 1, the interviews were group-based, with five students per group and two groups per class. Two classes, one with 33 students and one with 36 students aged fifteen and sixteen, participated in the research. The interviews were semi-structured and thus encouraged digressions, discussions and elaborations. The differences between interview times reflect the students' willingness to engage and elaborate. The interviews were audio and video recorded, conducted and transcribed in Norwegian, and then translated by the author/researcher for the purposes of presentation in subsequent publications. Part of the interview data, as well as observational data from the corpus-integration period, are reported on elsewhere (see Karlsen in preparation). While Karlsen (in preparation) focuses on the students' and teacher's engagement with and experience of the BACKBONE corpora, the present study draws on other parts of the interview data to explore students' opinions on education roles.

Table 1. *Composition of interview groups in relation to class and group affiliation, group sizes, gender balance, and time spent on the interview.*

Class	Group	Female	Male	Total students	Interview times
A	A1	3	2	5	51 minutes
A	A2	2	3	5	48 minutes
B	B1	3	2	5	34 minutes
B	B2	2	3	5	38 minutes
Total		10	10	20	

The corpora were available on the BACKBONE webpage and consisted of videotaped interviews and searchable transcripts featuring speakers of English varieties traditionally neglected in classrooms (e.g., Irish-English). These corpora were designed with pedagogical purposes and younger learners in mind (Kohn, Hoffstaedter, & Widmann, 2009). This resource was chosen due to the lack of other appropriate, freely available resources at the time of the research implementation in the autumn of 2019, although new multimedia corpus resources are currently in development (see Hirata, 2020). The corpus-integration period lasted two weeks and was implemented by the abovementioned teacher, but planned and designed by the author/researcher. Students worked with tasks that gave instructions on corpus exploration, as well as open-ended writing assignments resembling their mid-term exams. The more structured tasks provided step-by-step instructions on how to navigate the corpus tool and required the students to explore, compare and discuss different aspects of the website's functions (e.g., frequency lists, concordance lines or interview excepts) and a varieties of topics (e.g., idiomatic expressions). The tasks and lesson plans can be accessed here as online appendices. Since the

tasks and lesson plans were designed by the author/researcher, restrictions were put on the freedom of the teacher. After discussions with the teacher prior to the integration period, the following organizational outlay of the classroom was agreed on: student groups of six arranged around their desks. How the teacher introduced, approached or concluded activities was not specified; however, the tasks were designed in a structured manner that guided the students through how to the use of the BACKBONE website in order to reduce the degree to which the teacher had to familiarize himself with the BACKBONE website.

The data were analyzed through a process of segmenting, coding, and reassembling (Boeije, 2010). The chronologically gathered data were divided into segments based on codes and reassembled thematically for comparison. Some codes were established before the integration period based on theoretical constructs (concept-driven coding), but more codes were added during coding, transcriptions, and interpretations (data-driven coding). This dual coding approach was chosen because the semi-structured interviews produced data that could not be predicted beforehand.

The study and data collection were approved by the Norwegian Center for Research Data [NSD] (The Norwegian Directorate for Education and Training, 2019). Informed, free consent was given by everyone involved. Anyone could withdraw at any point without consequences. Everyone involved received a letter detailing the study with a high degree of openness.

4. Presentation of Data

The interviews show students' perceptions and expressed preferences regarding predominantly student-centered work with minimal instructions from the teacher. Note that the teacher was not given any pointers as to how he should act in the classroom, only task-sets that detailed how the students could approach the corpus resources. Citations from the interviews are sequentially numbered as indicated by the numbers in parenthesis. Student speakers are named S1, 2… 5, the interviewer is denoted as I, and the interviewed groups are denoted as either A or B for class and 1 or 2 for group in line with Table 1 (see Section 3).

Each group was first asked what their English lessons usually looked like. All four groups mentioned self-study as a dominant feature of the lessons. B1 was most adamant about it, as shown in the following interaction:

(1)   S1:   There's a lot of self-study, almost exclusively.
        S2:   Yes.
        S3:   Mhm.
        S2:   I think it can be difficult because he [the teacher] has an idea of what we're supposed to do, but then you do something you thought you should do. There is little lecturing, and it's sometimes difficult knowing what to do.

B2 experienced the lessons as varied depending on the topic, with some group work, some PowerPoint, and some self-study. They described a scenario in which the teacher provided them with articles online they had to read in order to write a text. A1 described having experienced a lot of teacher-centered situations where the teacher introduced a new topic for the whole class for anything between five and twenty minutes before they work on their own. Similarly, A2 agreed there was a lot of self-study but with a PowerPoint introduction. One A2 student did not appear to see the self-study as a positive, as he commented on the decrease in student-centered lessons in the following way:

(2)   I: So, you feel there is a high degree of student-centered lessons where you're in control?

S1:   Yes, it has become better since we began [upper secondary], but there was a lot in the beginning.

The students were asked during the interviews to comment on how they thought the teacher had functioned during the corpus-implementation period. All groups voiced that they would have wanted more of an introduction before being 'thrown into' the tasks. The teacher's introduction was a presentation of the researcher/observer and a discussion between the students and the teacher about what a recipe was, how to follow one, and an explanation of how the task-sets were to be followed like recipes. One student in A1 commented:

(3):   S: "I thought the task was really difficult, but I'm not sure how much our teacher knew either. I don't know if the teacher knew much about the project or the website [the corpora]. I don't know if he had used it much beforehand."

Similar concerns were raised in A2:

(4)   I: What about the teacher? How did you experience him this period?
        S1:   I didn't notice him much. I felt we were just working on the computer and that was it.
        S2:   […] often when I asked him he didn't seem to have a reason as to why and [for] what we were using [the corpus tool], and it was demotivating to continue and not understand. All he could do was point us to the next step of the list [the task-sets], but not help us actually understand it.
        S1:   I sort of felt that we had to understand everything ourselves, had to learn it by ourselves.

In addition to wanting a more thorough explanation of *what* to do with the task-sets, the students of B1 agreed they also wanted a more thorough explanation of *why* they had to do it.

(5)   I: How did the teacher function during this period?
        S1:   I think it might have been difficult to be the teacher since there was so much joking around and groups so large that no one could concentrate or pay attention, and he couldn't help everyone at once. When all the groups are sitting around wondering what to do, it might be a hint that he should have explained a bit better at the beginning, because all the groups sat around not knowing what to do.
        I: Was it explained eventually, or was it just confusion and him trying to put out fires?
        S2:   He tried to explain eventually, but it came a bit late.
        I: What could he have done differently?
        S1:   I mean, he doesn't know what the problem is when he starts, but perhaps try to pick up on it earlier and not when we're mid-lesson or almost done.

As with A2, B2 did not notice the teacher much during the period except for when they raised a hand to get help. One student commented:

(6):   S: "We could raise a hand and ask for help, as we're used to. I think it would've been harder if he had stood before us and explained, because then I wouldn't have followed it at all because it is much easier if you manage to ask questions yourself, because if everyone is listening to him at the same time, he cannot help everyone simultaneously."

Something both A-groups and B1 wanted was an introduction on how to write 'discussing texts' with research questions. This request was not only linked to the corpus period, but to their experience from the semester as a whole, which entailed these types of writing assignments. The conversation was trigged by the writing assignment they were given as part of the corpus-based period. In A1, students wanted an example text, a formula on how to write discussing texts like a math formula, and a list of words to use/not use. A2 had struggled to formulate research questions to their texts that also took the use of corpora into account. The students in B1 wanted to be taught more about text structure in general and have more clearly defined teacher expectations about what constitutes a good text. They missed initial training on

how to write, structure and word such texts, especially what words not to use. One student wanted a blackboard demonstration, and had the following conversation with a peer student:

(7) S1: I feel like a lot of the basics disappear.
   S2: Yes. It would help us knowing how to [write a text], so that we maybe could focus on writing English […]

B2 did not comment on writing training, but instead wanted an assignment with a self-chosen topic, as opposed to the two topics given.

(8) I: How did you experience writing a bit more research-based tasks where you have to use several sources and create a research question?
   S1: It depends a little on the topic. If it's a topic you find interesting, it's not that difficult. That makes finding information and websites easier, but it becomes harder once you're not that interested in the assignment.

The organization of the classroom was a point of discussion that revealed variation among the interviewed groups. While all of the groups expressed that they preferred some degree of variation, four of the students in A1 favored working alone with the option of asking their teacher or peers. Working alone forced them to solve tasks themselves, instead of copying other – often stronger students – which made them feel like they got less out of the lesson. One student said pair-work was all right, while another thought the big groups – as during the corpus-based period – made concentration difficult. Conversely, B1 felt too often left to themselves and that there were too few teacher-led lectures. Although they wanted a mixture of both, student-centered lessons dominated. This organization had led to one student feeling as if he did not always live up to the teacher's expectations, and another felt that the teacher had too high expectations of their abilities. The A2 students did not elaborate much beyond stating they wanted variation, that too big groups made concentration difficult, and that too much of the same became boring. Lastly, B2 had the following discussion:

(9) I: So do you prefer working in groups as opposed to working alone?
   S1: It varies, but ideally, yes.
   S2: It depends a lot on the task though. It's easier to be alone if you're writing a text.
   S3: Yes.
   I: I can imagine. Or else you'll become distracted?
   S2: Yes.
   S3: Yes.
   I: How do you like situations where the teacher talks a lot and you pay attention or only participate a bit?
   S4: It becomes a bit boring. You quickly lose concentration because you grow tired of listening all the time.
   S1: But from time to time it can be somewhat pleasant that you don't have to do anything yourself and just listen, if you're focused.
   I: Just lean back and…
   S1: And in a way try to receive the information, but often when he is telling [us something] it is useful information, which makes for a lot of writing in addition to listening, and that makes it difficult to follow.

As shown in this section, the students express many diverse opinions and preferences regarding their educational experience. In the following section, these perspectives are discussed in relation to DDL proponents' assumptions about secondary education and in light of inquiry-based and learner-centered approaches.

5. The Emergence and Diversification of Educational Roles in Corpus-Based Education

In the following section, the interview data are discussed in relation to perspectives on educational roles in DDL and related didactic perspectives (see Section 2) to answer what educational roles are afforded by corpus-based lessons, and what student opinions reveal about these educational roles. The interview excerpts are referred to by their number in parenthesis. In section 5.1, the students' preferences and previous experiences are discussed against assumptions about changes DDL would bring to the classroom. Section 5.2 discusses the students' feedback from the implementation period and what it shows about roles in light of the abovementioned theoretical perspectives.

5.1 Students' Previous Experiences and Assumptions about Roles

The first point that should be addressed is the students' impressions of their English lessons prior to researcher interference and how they align with the positive changes suggested in DDL. Note that these are retrospective generalizations prone to biases; nevertheless, their input gives an impression of their previous classroom experiences. Based on student utterances, there is much to suggest that the teacher already occupied a partly facilitative role. The students described their lessons prior to researcher interference as self-study lessons with some variation in group organization, and often prefaced by introductions on the topic from the teacher. The teacher would provide resources to explore, such as links to articles and problems to solve, and impart students with great responsibility for their own learning process (see Section 4). Although many of these aspects coincide with Doyle's (2011; see Section 2) notion of learner-centered teaching, the teacher's initial introductions fall closer to a teacher-as-teller/instructor role. In a sense, the teacher is therefore already demonstrating a degree of mobility between different roles. This mobility is in line with Darsih's (2018; see Section 2.2) observation that a *shift* of the teacher role from giver-of-information to facilitator may be less of a permanent change and more of an example of dynamic role taking based on teacher judgement.

Several challenges for learner-centered education emerged during the interviews. Firstly, excerpts (1) and (2) show that the students did not discuss learner-centeredness in exclusively positive terms, but experienced confusion and abandonment. They wanted more training and instruction on text writing, which reveals preferences toward a clearer teacher presence and concrete input on certain topics. Secondly, excerpt (7) shows that too much self-driven discovery while learning how to write texts was experienced as interfering with the students' language learning. The discovery aspect of corpus-based lessons appears to be largely concerned with discovery of language (see Section 2) but leaves the question of what other topics or elements of the learning process should be discovery-based and adhere to the abovementioned role shifts. Thirdly, it highlighted a potential challenge for the teacher to gage the degree of freedom and responsibility that should be entrusted to the students overall. This issue is expressed in one student's experience of not living up to the teacher's expectations, suggesting that increased student responsibility produces unclear expectations. Fourthly, the student discussion in (9) is a good example of the necessity of lesson variation; where one student found lecturing boring, another occasionally found it pleasant. The juxtaposition of the active DDL learner against the passive recipient, with the latter being construed as demotivated (Papaioannou et al., 2020; Section 2), may hold some value when discussing learner motivation; however, judging from this study, monotony due to lack of variation seemed a potential de-motivator and challenge to differentiation when transitioning completely to a learner-centered approach. Consequently, the call for teachers to "'let go' and let the student take pride of place in the classroom" (Gilquin & Granger, 2010; see Section 1) raises three concerns. Firstly, that this shift has partially occurred and DDL scholars are erecting a strawman against which DDL is compared. Arguably, successful corpus integration must rely on updated information about secondary classroom practices (for instance the fact that many

teachers in their everyday practice already alternate between several roles such as 'giver-of-information' or 'facilitator'), so that corpus-based techniques can be appropriately adapted to complement said practices. Secondly, to what extent should teachers relent control? Should everything be left up to discovery? If not, where should the line be drawn? Lastly, student-centered teaching appears to be held up as the de facto 'best practice' for learners and learning. This assumption should be examined more closely in relation to learning styles and preferences before it is acknowledged as an exclusively positive change to the classroom.

It should be stressed that the indications that there are already student-centered, inquiry-like practices is positive for corpus-based educational research. Viewed in terms of inquiry-based education (Walker & Shore, 2015; Section 2.2), parts of both the exploration stage and engagement stage could already be in place, such as teamwork, discussion, and creation of questions, offering corpus-based approaches a foundation to build on. Consequently, the role changes may not be as big a leap as first presumed since the secondary school teacher is not akin to a university lecturer. Simultaneously, through Walker and Shore's (2015) framework of role acquisition (Section 2.2), one can identify areas where students struggle with inquiry-based education – e.g. initiative taking or data interpretation – in order to focus on these elements in future research and foster them in corpus-based lessons. Notably, some students had the impression that the teacher was not sufficiently familiar with the project or the corpora (excerpts 3 and 4) and one student found it difficult to identify the teacher's expectations. These challenges suggest that the exploration stage (cf. Section 2.2) was not properly covered, i.e., "where students and teachers familiarize themselves with the expectations of an inquiry-based classroom" (Walker & Shore, 2015, p. 8). The data fit Walker and Shore's (2015) framework quite well, as such conflicts related to traditional role habits are predicted and must be resolved in order to reach stabilization (cf. Section 2.2).

5.2 Role Taking and Development during a DDL approach
Certain issues emerged from the students' feedback that touched on the facilitative teacher role and the investigative student role. During the two weeks of corpus integration, the students experienced the teacher as absent and unengaging (excerpts 3 and 4), and too slow to notice challenges that arose underway (excerpt 5). Based on their utterances, the students expected the teacher to frame the lesson, i.e. *why* are they working with the corpus; specify the usefulness of the tool, i.e. *what* can it be used for; motivate them; and instruct them on *how* it should be used once they got stuck, or even before the demand for aid arose (excerpts 4 and 5). As shown in (3) and (4), the students' opinions of the teacher as passive made them question his corpus expertise. From a research perspective, this feedback highlights issues of researchers functioning as material designers and teachers as implementers, as teachers get less ownership and a diminished overview over the lessons. At the same time, it reveals the subtleties of role taking and problematizes rhetoric such as that 'in some cases, […] learning [may be] more effective without a teacher' (Boulton, 2009; Section 1), or that students' curiosity and interests concerning language study are presumed to be realistic motivational forces (Bernardini, 2004). Additionally, it goes beyond the assumption that the problem lies in teachers' fear of giving up control (see Breyer, 2009). Rather, it shows how role taking becomes a negotiation of involvement, role definitions, and responsibility. Each student needs to invest in her/his new role and get involved, while the teacher needs to find his/her degree and type of involvement as a facilitator or instructor or coordinator, etc. The degree and type of involvement both needed and *preferred* require considerations that make clear-cut definitions of roles difficult. Lastly, as pointed out by Doyle (2011; Section 2), there must be a shared responsibility for the learning process among teachers and students. This responsibility is likely well understood by teachers,

but demotivated or uninterested students might not see it the same way. The teacher's job is to make space for and promote this shared responsibility, a difficult task if the students feel they are given too much or all of the responsibility, and are unaware of the preparation, organization and evaluation that go into student-centered teaching. According to Doyle (2011), the facilitative role entails providing an environment for engagement, resources, and evaluation (cf. Section 2), all of which were provided by the teacher in the current study, albeit to varying degrees. However, what was missing from the period of corpus implementation is Weimer's (2013; Section 2) notion of *modeling* in which teachers solve a task as a demonstration with meta-commentary. Added to the packed facilitative role suggested in DDL literature such as mediator, coordinator, and resource provider, the teacher partly takes the role of a learner and partly as an instructor. This technique is not student-centered, but teacher-led. It shows the usefulness of mobility between roles when teachers become learners and instructors, and students become observers and co-learners.

The argument here is to move from a discourse of the permanence of *role shift* toward the flux of *role diversification.* By understanding the different roles participants must take on based on the situation, we can get to a place where the advice for corpus-wielding teachers is diverse and specific. Work is already being done in this direction through mapping the required competencies and literacies of a corpus-wielding teacher (e.g. Callies, 2019; Lénko-Szymánska, 2017) or through incremental approaches to student-corpus interactions (e.g. Kennedy & Miceli, 2016). These studies could form a foundation for understanding the teacher-as-facilitator concept in a corpus-based environment. This basis alongside didactic theory can help us move past hyperbolic statements about the teacher no longer being an expert or source of knowledge (cf. Sections 1 and 2) and instead focus on where the teacher's expertise can fit, where it is still useful and necessary, and what types of new expertise are required for the teacher-as-facilitator to foster the student-as-investigator/researcher role as well as a multitude of other roles.

6. Limitations, Implications and Future Concerns

There are several limiting factors to this study. Firstly, it only follows one teacher and two classes and is restricted to the idiosyncrasies of this particular context. Second, the tasks were not typical concordance searches, but several exploratory activities. Third, the study was short, and a longer period would afford more space for an incremental approach. Fourth, the teacher, although involved in the planning, was very busy. Research where the teacher is even more invested would make the setting more natural.

Nevertheless, this study is a starting point for understanding the complexity of role taking in a corpus-based classroom. While student-active education is undoubtedly a positive development, one must be careful not to throw the baby out with the bathwater. There may still be value in some instruction, some information might be more easily shared with the whole class, and not all students respond similarly to student-centered discovery approaches. The teacher can be a facilitator, a director, a planner, a material designer, a learner, and even an instructor. Likewise, the learner can be an observer, constructor, detective, teacher, and even a passive recipient of some information. The language of 'role shift' should be traded for one of role taking and diversification, in which all participants "[adopt] additional and varied roles within the classroom" (Walker & Shore, 2015; see Section 2.2). In future research, more emphasis should be placed on discovering what roles are appropriate at the different stages of student corpus consultation. What sort of tasks should the teacher create? When is it appropriate to instruct students on the functionalities of a corpus? When should they be given more control

and how can the process be differentiated? These are just a few key questions that need answering for educational roles to be realistic and diverse in corpus-based education. Research in naturalistic classroom settings based on in-depth observations and participant experiences will offer a more in-depth understanding of the complexity of role taking so that we can reject the pursuit of *role shifts* and embrace the goal of *role diversification*.

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