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Academic Maturation and Metacognitive Strategies in Academic Research and Production

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Abstract This qualitative research aims at linking recent findings related to cognition and self-regulated learning with complexity-driven educational framework that promotes Teacher-Learner communities of practice, in which knowledge is generated and constructed through a complex process of reflection and negotiation. Building on the data that was obtained through a textual academic literary self-report, we explore students' engagement and agency in the activities that are inherent to higher levels of academic education (Ph.D. studies), that is, researching, reading, writing, participating and interaction with other members of academic communities. The results are relevant for our deeper understanding of academic maturation from the cognitive and socio-cultural perspective within a complexity-driven, transdisciplinary educational paradigm.

Keywords Academic Writing, Academic Maturation, Metacognitive Strategies, Qualitative Research, Complexity and Transdisciplinarity

1. Cognition and Metacognitive Strategies

Constructivist theories of knowledge, and particularly those that align with critical pedagogy, maintain that the goal of education is to create competence that learners need to be active participants "in a plural and democratic society, and that enable them to make their own contribution to that society" [1]. Starting from this premise, we question what the useful knowledge is and how it is created through the process of higher education; in other words, what is the role of higher education in preparing students to be responsible and active agents in the democratic society?

According to Nonaka and Takeuchi [2], knowledge creation is intimately linked with the idea of innovative thinking that implies a dynamics between explicit and tacit knowledge. Tacit knowledge is personal knowledge embedded in individual experiences, which involves intangible factors such as routines, personal beliefs, emotions, and value system, and it is mainly unconscious. On the other hand, explicit knowledge is easy to articulate and express formally in clear terms, it is "accessible through consciousness" [3]. Paavola, Lipponen and Hakkarainen [4] explain that the basic source of knowledge creation in this model is tacit knowledge, which needs to be externalized and explicated. In this way, a new level of awareness is achieved since a person becomes able to reflect on his or her knowledge and to evaluate it. It follows that the process of "knowledge externalization" is at the core of critical thinking and metacognitive knowledge, which focuses on the role of awareness and executive management of our own thinking [5]. Furthermore, by externalization, knowledge does not only represent an individual asset; instead, it is transformed into knowledge that is useful for groups and organizations. This view clearly accentuates a shift in emphasis from possession to becoming and from the decontextualized learner to the learner as part of a larger group that engages in shared activities [6,7]. Furthermore, the focus is on activities and knowledge creation more than states or products. Knowledge does not exist either in a world of its own or in individual minds, but is an aspect of participation in cultural practices [4,8-10]. At the same time, learning is a process of the on-going individual transformation and reconceptualization of one's identity, since it is through learning that we reinvent ourselves in relation to the world.

In this sense, learning is a sociopolitical practice that is intimately linked with the idea of (academic) maturation and development of critical thinking. Critical thinking is defined by Ennis [11] as "'reasonable, reflective thinking that is focused on deciding what to believe or do'. Critical thinking includes such acts as "formulating hypotheses, alternative ways of viewing a problem, questions, possible solutions, and plans for investigating something" [12]. Notions of skills and attitudes or dispositions [13] are often distinguished within the concept of critical thinking. In other words, critical thinking also includes a number of cultural models and ideologies which are used as "sources of evidence or forms of verification" [1]. These ideologies are of general,

but also epistemological, political, social and other nature, which help the 'thinkers' "to select between environments" [14].

Metacognition in academic research is very closely related to what Weinert [15] defines as "specialized cognitive competencies [which] refer to clusters of cognitive prerequisites that must be available for an individual to perform well in a particular content area". Herein, we also postulate that these cognitive competences must be related to critical thinking and critical pedagogy if our ultimate goal is autonomous i.e., self-regulated learning. Kuhn [16] draws on empirical research on cognitive development to defend the close relationship between critical thinking and metacognition, which refers to "second-order *meta-knowing* skills that entail knowing about one's own (and other's) knowing". He specifies the three forms of meta-knowing, that is, metacognitive, metastrategic, and epistemological, and insists that epistemological knowing is particularly important since it influences the other two components. Importantly, epistemological knowing is largely unconscious and, in a way, reminiscent of tacit knowledge. Similarly, Halpern [17] emphasizes the reflective, self-evaluative nature of critical thinking that is necessary for assessing thinking and participation. It is evident, then, that critical thinking and metacognition are crucial for learning and identity construction since they enable the learner to become autonomous and responsible participant in social practices. Learning is, thus, an inherent social process, through which learners create their identity in relation to communities and social practices in which they participate.

In their review of the research on metacognition, Paris and Winograd [5] point out that the researchers came to an understanding of metacognition as consisting of the knowledge about cognitive states and processes and control or executive aspects of metacognition. These represent two aspects of metacognition that are consistent with the differentiation between declarative and procedural knowledge, that is, self-appraisal and self-management of cognition. With this in mind, the authors clarify that metacognition is a psychological construct with several important features: 1) it focuses on the role of awareness and executive management of our own thinking which is very much in line with the constructivist theory of learning; 2) it emphasizes personal appraisal which allows us to focus on students' individual differences in the learning process; 3) it develops with experience and schooling; 4) it is amenable to instruction, and 5) it is closely related both with cognition and motivation and has strong predictive capital for the learning outcome.

Metacognition has often been related and sometimes even made synonymous with the concept of self-regulated learning [18] and, as such, it is inseparable from the idea of autonomous learning. However, the level of autonomy is very variable and depends on a range of factors related to the individual and the specific learning context. In that sense, the level of autonomy is not something pre-established but has to be determined in each particular case; that is, "[t]he desirability of autonomy itself may fluctuate with the learning situation and the task at hand" [19].

Consequently, we postulate that autonomous, self-reflective action in any type of learning process is based on metacognitive strategies and critical thinking which need to be explicitly and overtly addressed by the teacher. This is particularly important in higher levels of education, such as in advanced, postgraduate studies in which the capacity for independent academic research and production is set as the key objective for each and every student. All the above postulates and goals are made more accessible to both university students and their professors if we make an attempt to reframe our understanding of the learning and teaching processes, as well as the concept of the interaction (in the broadest sense of the word) among students and professors, students and students, students and texts and professors and texts.

2. Complexity-driven, Transdisciplinary Educational Paradigm and Teacher-student Communities of Practice

That is why to all the above theoretical research in this area, we would like to add concepts of complexity and intertextuality. Complexity "takes into account intrinsic, complex interactions among elements/ features/ particles/ human beings and includes all the possibly perceivable facets of their nature into the scientific focus. Complexity assumes that no super-position should be applied in scientific research. It suggests that each and every research phenomena should be analyzed in all its complexity, made out of background information, agents and their interactions. It argues against the 'research method of special cases' whose findings are then raised to the level of generalized knowledge" [20]. In other words, if a researcher is to be autonomous, she or he has to think critically, make relevant intertextual connections and think non-dogmatically: i.e., construct grounded theories, look for interconnections, as well as circular, retroactive and non-linear causality, through meaningful and emotional interactions [21]. In complexity theory, all systems, including social organizations of human beings, can and/or should be viewed as open and dynamic, consisting of a number of elements or humans that engage in a number of interactions, while all the time receiving and responding to a continuous nonlinear flux of information and physical, cognitive or emotional impact from the outside world. If allowed to react and respond, these systems self-organize and emerge as more complex and readier to engage in further interactions both within their internal organization and with the outside world [20,22].

In linguistic research, concepts from complexity have been successfully applied to SLA [22,23], as well as to sociolinguistic research [20,21,24-26]. Constructivist paradigm in linguistic research targeting the notions of

language in community and language in context, which takes a critical stand toward a purely structuralist view of language, goes hand in hand with the notions of complexity. Language in constructivist, complexity driven research is understood not as a simple and denotative structural fact, but rather as the basis of all our human experience, including all the norms and limitations imposed upon us by the patterns of our social organizations, but also the capacity for creativity and innovation in our interpretations of the world around us. Linguistics understood within this particular theoretical framework, based on critical theory and qualitative research, provides us also with a more sophisticated methodological apparatus to understand the complex thread of social interaction and social organization and help us view the possibilities which allow us as researchers and as human beings to become active agents in the emergence of new, different, diversified and contextualized points of view in the formation of pluralistic and systemic *knowledges* [20,26]. This type of language research is labeled as macro-complexity driven linguistics, which views language as a function of communicative social action, deeply rooted in cultural, historical, political, social and other domains of our private and public lives. Language complexity can be understood as an intrinsic, finely tuned interaction between language-internal and sociolinguistic factors which correlate with other semiotic systems used in communication thus creating emergent meanings in our societies [20,26,27]. "Life is only possible in open systems exchanging matter, energy and information with outside world. *It is also clear that a society is a nonlinear system; what one person does influences the action of others*" [28]. Is there a better explanation for what happens in the process of academic maturation? Students and teachers create communities of practice in which meanings emerge and interpretations abound, if and when they are allowed to think critically and express their needs, concerns, doubts, but also enthusiasm, happiness about one's achievement, pride stemming from an assignment well done or an idea worth developing; communities of practice based on heterarchic[1] principles of distributed responsibility [30]. If in academia, we manage to establish critical relationships, based on good will, trust and companionship between students and professors, the professors may not only do better in helping their students walk that path of academic maturation, but together they may also create emergent communicative academic practices which may create a foundation of new, alternative and non-mainstream forms of academic knowledge. Thus, we understand academic research and maturation "as situated practice within academic communities, through participation rather than acquisition" [9], which is carried out in participative communities of practices based on "evolving membership" where students are encouraged to explore subjects and topics they find meaningful in their local, regional, national and international contexts, even when they fall outside of the 'mainstream' scientific knowledge.

In that sense, we believe that the concept of Teacher-Student Community (derived from the original Teacher-Learner Community [31]) further develops Lave's notion of "evolving membership" in which "legitimate peripheral participation is essential to the (...) modes of belonging to a community of practice. Through collaboration and active engagement in a community of practice, members are able to imagine themselves, their roles, and their future in the practice as they move from peripheral to full participation, or from novice to expert, in making meaning of the tools, concepts, and processes that co-construct and cultivate the practice" [9].

This is where we enter into the field of transdisciplinarity. "Transdisciplinarity does not define research problems using exclusively scientific terminology; rather, it includes a wide range of interested parties into the process of problem identification and definition, as well as its solution. This all leads to a new understanding of competences and knowledge in general: knowledge is no longer property of one person or a designated institution. Quite to the contrary, it is viewed and understood as a common good which is preserved and further developed within an ever-open public debate among interested parties. *Transdisciplinary research is collaborative, dialogical, reflective and generative*" [20, italics ours]. This is precisely what our classroom should be like: collaborative and dialogical, overcoming the challenges of the traditional ex-cathedra method of canonized knowledge transfer; reflective and generative, providing space for critical observations, thinking and creation of contextualized meanings relevant to each and every participant in the process (not only to those present in the classroom, but also to those whose lives we try to understand and describe in our research): "With advanced levels of participation, participants' identities and understandings become increasingly aligned to the practice, as they become more skilled in their knowledge of the practice" [31] .

And finally, translated to academic maturation, complexity directly relates to intertextuality, which is herein understood as "looking for 'traces', the bits and pieces of Text which writers or speakers borrow and sew together to create new discourse" [32]. The Text in academic research refers to a relevant literature based, autonomous, critical understanding and interpretation of a topic in question, i.e., a new discourse in which a point of view is taken relevant to the specific target audience, or an academic community of practice/interest. In other words, it refers to a linguistic and social product which emerges under very well defined contextual constraints or boundaries. On one hand, we can talk about general, societal constraints, such as a geographical location, native language and dominating epistemological paradigms of the academic institution in which the text is being created. On the other hand, we have to take into consideration individual characteristics of each

1 "Heterarchy is an amorphous phenomenon that has intrigued us since people began organizing, (and which) is being examined now for its relational aspects. (…) there are more and more studies on partnership, followership, empowerment, teams, networks, and the role of context. (…) Ethical and moral questions are no longer fuzzy religious concepts but key elements in the relationship any organization has with colleagues, stakeholders, and communities" [29].

student and professor as well as the social dynamics of the community of practice they create within any given classroom. In academic maturation at different levels of academic maturity and in different languages (L1, L2, etc.), intertextuality becomes the key component of the context in which search for information is carried out and attempts are made to transform that information into the knowledge which can then be systematically organized into a written form prepared for different types of reading audiences (we emphasize the notion of written outcomes as they have long ago become the norm in knowledge presentation and transfer in academic communities worldwide). We take Porter's view that writing an academic text is not an individual process and that "intertextuality suggests that our goal should be to help our students learn to write for the discourse communities they choose to join" [32]. Moreover, we strongly feel that our understanding of critical pedagogy and learned cognition is actually very nicely described by the following quote from the same article:

> "Our immediate goal is to produce 'socialized writers', who are full-fledged members of their discourse community, producing competent, useful discourse within that community. Our long-range goal might be 'post-socialized writers', those who have achieved such a degree of confidence, authority, power, or achievement in the discourse community so as to become part of the regulating body. They are able to vary conventions and question assumptions - i.e., effect change in communities - without fear of exclusion." [32]

Consequently, we strongly believe that instructional strategies should be applied in order to develop metacognitive strategies in the process of academic maturation, always bearing in mind the main theme of critical pedagogy regarding the politics of knowledge and the social power relations underlying legitimized forms of academic so-called "truth" [20]. In other words, in this paper we are making an argument that "education that aims to promote critical thinking must stimulate students to participate in practices with the objective of improving the quality of society for everyone and to participate in the discussion on what exactly is 'quality'" [1].

3. Case Study

This research grew out from a larger international project *Academic Writing across Continents* (AWAC) conducted in collaboration between the University of Sao Paolo in Brazil and the University of Belgrade in Serbia. Principal objectives of the project are geared toward an understanding of the hazards of the transmission of skills and competences developed throughout Ph.D. program in both countries separately and comparatively and exploring the impacts of that acquisition over the students' participation in academic activities. Related to this general objective, herein, we seek to understand the obstacles in the process of academic maturation that are mainly related with the passage from a passive to an active position in academic participation and the process of gaining agency through students' development of metacognitive, critical skills. For that purpose, we engaged in a participatory qualitative research with six doctoral students (four females and two males, ages 26 to 33) who were enrolled in the first or second year of the Ph.D. program at the Faculty of Philology at the time we conducted this study (Summer/Fall 2015). It is also noteworthy that they have all been active members of the AWAC project since the academic year 2014-2015. Regular online forum discussions (on the Faculty's *moodle* platform), Facebook interactions with the Brazilian colleagues (both students and professors) and monthly meetings with the professors from the Faculty of Philology assured the sustained communication and participation in the Student-Teacher community of practice.

The data for this study were gathered through a textual academic literary self-report, organized in four domains, according to the activities that are inherent to academic education, that is, researching, reading, writing, and participating (see Appendix). Every domain was structured through a number of questions that are conceived as guidelines for students' self-report. In that respect, researching is mainly outlined through the activities students conduct in order to define the topic of their research, the way they organize their activities day by day, the way they define the relevant criteria for research methodology, and the amount of the perceived influence of the professor/supervisor throughout the process. Secondly, reading domain refers to the selection criteria of the reading material, the strategies used during the reading, difficulties one encounters while reading, self-evaluation of the reading process, and the influence of the professor/supervisor on the student's reading process. Thirdly, questions related to writing directed the students to reflect on their writing process, strategies used for different types of texts, the way they conceptualize their ideal reader, difficulties they confront when writing, self-evaluation of the writing process, and the influence of the professor/supervisor on the student's writing process. Finally, participation domain refers to students' regular and preferred academic activities, criteria used to take participation in different academic activities, perceived influence of these activities on academic formation, as well as the influence of professors and peers on the selection of these activities. After the completion of the self-report, we asked doctoral students to elaborate on another theme related to the influence of the supervisor and academic community in general, since a preliminary analysis of data indicated that this aspect might be particularly important for this group of participants. The students completed the self-report in Serbian, which is their first language, so selected excerpts were translated into English for this presentation.

In data analysis, we followed variable-oriented strategy to find themes that cut across cases [33], so we could establish

relationships between different aspects of participation, metacognitive knowing and maturation process. Although the initial questionnaire was divided in four domains (researching, reading, writing and participation), the analysis directed us toward three main themes, that is, researching, reading and participation. For this group of students, there is a strong link between writing and participation, which are even perceived as two inseparable activities. In the following section, we proceed with analysis and interpretation of the data according to these three general domains.

3.1. Researching

All six doctoral students have shown a great level of academic maturity and organizational skills in reporting on different stages of the research process: defining the question, literature analysis, data collection and selection, and further specifying of concrete research topics. A description of the research process by a participant is very illustrative in that she demonstrates awareness of the different facets of the investigation. It clearly illustrates a well advanced process of academic maturation, in which knowledge is constructed through critical thinking rather than adopted through mere acceptance of someone else's claims.

"Block 1: collecting starting materials (used for constructing theoretical and methodological framework);
Block 2: reading the collected material;
Block 3: writing of theoretical and methodological framework;
Block 4: explaining the relation between the theoretical part and the main research;
Block 4: realization of the research;
Block 5: summarizing the results of research;
Block 6: final conclusions."

There is no doubt that this Ph.D. student has a good knowledge of the elements that form part of the research process. Furthermore, she is capable of explicitly stating them, which proves that she does not lend herself only to intuition but possesses a good level of metacognitive knowledge to regulate her researching. However, the form in which these stages are enumerated is very interesting and, to an extent, reminiscent of a checklist as if the research proceeded in a linear, segmented way, where completed phases are not further elaborated in the later stages of the process. If this were the case, a subsequent objective in further improving research skills would be directed toward raised consciousness of the continuous, recycling nature of the research process, in which all phases are repeatedly addressed and developed.

Importantly, the participants show a heightened understanding of the importance of intertextuality in the research process which could be observed in their belief that their research should stand on shoulders of the existing body of knowledge and provide a new way to understand a phenomenon of interest.

> "Starting from a field of interest, the first step is usually to study the available literature and *identify 'gaps' or 'missing pieces' in the proposed models or explanations that my research could potentially address*." [italics ours]

This doctoral student focuses on knowledge creation: she believes that her role is to find "missing pieces" so she could contribute with something new, which reveals her understanding of the research as creative and co-constructive activity. While she needs to rely on the existing body of knowledge, she also maintains that the research process is related to the creation of new knowledge that is relevant for the community. The crucial facet relies precisely in one's agency and awareness of academic knowledge as something relevant and useful for others, which is indicative of a high level of academic maturity in this particular student.

3.2. Reading

In relation to reading, critical evaluation of the text read was the most salient theme among doctoral students. The following segment illustrates well the heightened level of critical awareness and engagement in reading other's texts:

> "I sometimes find it difficult to be open-minded if I have to continue reading something that sounds useless, pointless and lifeless. I have difficulties concentrating on something I disagree with, which I firstly regarded as an immense problem for somebody who wants to be part of academia. However, later on I have found this quite refreshing and it turned to be quite the opposite. Namely, whenever I read something I disagree with, I am eager to finish reading so that I can focus on checking and re-checking the data and discovering who is 'right' or 'wrong'. Of course, I understand that there is no right-or-wrong in this world, nothing is so simple. But this little game of mine keeps me engaged in the topic for as long as I deplete all existing resources regarding that subject."

Reading is, thus, not understood as a reception of information that should be analyzed and reorganized; instead, the reader has an active role and it is his or her responsibility to question the text. Another aspect of this passage refers to the participant's reflection on personal maturation in reading. While at first this student was frustrated by texts with which she did not agree, or she found "useless, pointless and lifeless", she learned to use this to her advantage as a mental exercise for questioning her own thinking. In this way, she stays engaged and alert to different interpretations, developing thus her critical thinking skills.

This deep understanding of the reading process is evident also when the doctoral students read their own texts:

> "I try to establish some kind of a distance between me as a writer and me as an author; because that is the only way I am not biased. I try to perceive my work from the eyes of my imaginary reader, since

> he is the one I ultimately want to satisfy. If I, as a reader, don't understand something or think it is insufficiently explained, then I, as a writer, need to think about how to change this. I sincerely hope this is clear and that other people do it too, because otherwise this would sound like a diagnosis."

With a pinch of humor, this student describes the need to distance herself from the text and to read it through the eyes of her ideal reader because, in that way, she could be more critical of her own writing and reach a certain level of critical evaluation. This is a useful strategy since it provides a tool for a different interpretation of one's own texts, but it should be complemented with an alternative reading strategy, one that we did not observe in the data. Are these students aware that the text is always someone's product and that the strategy of an "anonymous reader" we observed in the previous example is a simulation of the authentic reading process? To what extent they reflect on the fact that the text is interpreted and evaluated in relation to its writer? And, to what extent are students aware of themselves, their personal, social and cultural attributes and their role in academic activities? The fact that these students did not elaborate much on the idea of their ideal reader might be indicative of this lack of critical awareness.

3.3. Participation

Interestingly enough, the participants' discussion on the role of participation has been linked with writing to the extent that there is almost an equation between these two processes. Without a doubt, this reveals students' understanding of their role in the academic community which is mainly directed toward the creation of the written product. As it was previously discussed, they do understand their agentive role in this process and maintain that they should contribute with something new and useful for the relevant communities of practice. Nevertheless, this aspect of their epistemologies might reveal a lack of awareness for different, alternative forms of participation, especially those in the realm of social activism. If this were the case, the study program would need to explicitly address these issues in order to raise students' awareness of the possibilities, complexities, and ultimately of their responsibility in the society.

On the other hand, all the participants from our research are well aware of the co-constructive nature of knowledge creation and they strongly agree that

> "The quality of the produced paper will improve drastically if more people are involved, both in terms of content and proofreading."

This has led us to a conclusion that they have already positioned themselves in the inner circles of the corresponding Teacher-Student Community in which they feel confident in their own projections of knowledge and participation and in which a strong sense of membership and good will is understood.

> "I discuss certain matters with my colleagues, classmates and other peers, I attend congresses and seminars whenever possible and I also think a lot about where I want to go next (in the sense of education) and what I want to achieve. This helps me establish appropriate pace and goal. Conversation with other people and reading is usually where I get my ideas from, so these two processes are inseparable."

We are witnessing here the constructive nature of knowledge creation, generation of meanings in purposeful and good will interactions in a number of interacting interested communities of practice (consisting of professors and students, or of students only). In other words, academic maturation presupposes complexity-driven, socially engaged transdisciplinary negotiations of meaning through dialogue and reflection in which knowledge is not presented from the heights of institutionalized academic positions of power (most commonly personified in the form of well established professors in a given field), but rather sensitive to local, individual, social, political, cultural and other factors which form part of our metacognition.

3.4. Socio-cultural Aspects

When researching the answers we got from the participants, we decided that we had to add more specific questions regarding the issues which are closely affecting the Ph.D. students in the process of final maturation stage which, upon a successful completion of their dissertation, should legitimize their position within relevant academic communities of practice. Therefore, we asked them if they felt any pressure from the academic community, advisers, journal editors and other more established members in the academia in general. Some of them stated that the first obvious type of pressure was directly related to the competitiveness of the Ph.D. program itself and their feeling of inadequacy in the face of their peers:

> "In the beginning of my Ph.D. studies I felt some kind of pressure regarding publishing papers in journals and my colleagues and I used to have very frequent discussions on that subject. We were insecure about our skills/talent but after publishing first articles, we all felt more confident."

Others stressed the importance of the peer community of practice in which they feel challenged in a positive and non threatening way:

> "I try to cooperate with young researchers who I see as good and positive people, friendly, fair, open-minded. We try to be supportive and give useful, helpful advice to each other. There are some young researchers and Ph.D. candidates who have a tendency to show competitive spirit but in a

> negative way, competing and comparing with others when all that matters is THEIR hard work and pushing THEIR own limits. I have experienced (more that once) benefits from brainstorming and talking to my colleagues. I am sure we all have made each other better researchers by sharing suggestions and comments of different members of academic communities who evaluated our papers before being published."

And then, there were those who made a selection among their peers and distance themselves from those they feel are not constructive in their criticism:

> "I don't feel any pressure when approaching a research topic because I have made an effort to distance myself from too competitive and ambitious colleagues."

The pressure from the advisor was also discussed and the participants all stated that they had excellent rapport with their supervisors, while some even went further and said that they felt their advisors were sometimes too lenient and permissive and that imposing stricter deadlines might help them become more efficient in their research, writing and publishing.

That, of course, leads us to the question which affects not only Ph.D. students, but all the researchers in academia, regardless of their status and years of experience, and that is the pressure when attempting to publish a piece of research, in any form of accepted and validated academic literature (journals, collective monographs, books, etc.).

Some participants in our study appeared to have thought this issue through very carefully:

> "This is the point when I start to feel pressure. Both peers and advisers are people whom I know, personified in real human beings, and in most cases I know what kind of evaluation to expect from them. Other members of academic communities (such as reviewers or members of a board) seem more as an abstract force than real human beings and I do feel pressure and even fear from their evaluation. If I think more thoroughly about this, I would say it is fear from the unknown, fear from not knowing whether my research is good enough (creative, innovative etc.) to meet the criteria, or even not knowing what the criteria really are (how strict, thorough and demanding the evaluators will actually be)."

Others were also sometimes potentially critical of the peer review process itself:

> "My greatest fear is that my work would be evaluated by members of academia with an insufficient grasp of the subject matter (general knowledge vs. in-depth knowledge) or who are prejudiced or biased in some pertinent way (e.g. favoring a particular methodological or theoretical approach without disclosing it)."

On the other hand, others approached this question as an evolution, an ongoing maturation process which allows them to gain confidence and help them not be smitten by initial failure (which, we are certain, we all have experienced at some point in our academic careers):

> "When it comes to an evaluation by different members of academic communities, I felt more pressure when I started my Ph.D. studies 3 years ago. I was a very young researcher (I was 25) and I still think the same. That is one of the main reasons I try to stay calm and don't 'blame' myself if I make a mistake. I find all evaluations very useful having in mind that all suggestions come from older and, more importantly, more experienced researchers."

> "The other reason that helped me not to underestimate myself or not to be too strict with my own work is the fact that I have read many articles published in different national journals (whose authors are experienced and successful professors from different universities) with confusing structure, lack of basic information, vague conclusions etc. In the beginning, I expected to be impressed with every article written by my senior colleagues but then I realized that, like in every job, there are people who are better and others who are worse at doing the same thing."

Some answers were interesting in a sense that they did not demonstrate any type of anxiety when it comes to publications in academic journals, but were sincerely frightened by the prospect of having their Ph.D. dissertations evaluated by a number of professors at different levels of the administrative process of approving the text and inviting a candidate to an oral defense. The only way we can account for such a contradictory attitude would be the still very strong presence of a 19th and early 20th century German and French academic tradition. The cultural model imposed in the Serbian academic community for decades and centuries has placed a strong emphasis on the relevance and importance of a Ph.D. dissertation which has by many been viewed as the crown of one's academic career rather than a necessary condition and a first step in building one's academic identity. The same cultural model has not placed much value on publications in academic journals, and is still very common to see CVs of very experienced, mature, university professors with an impressively short bibliographical list in Serbia.

4. Conclusions

In this paper we tried to corroborate recent findings related to cognition and academic maturation by an empirical, qualitative research in which students have been invited to participate in Teacher-Student communities of practice,

based on heterarchy, collaboration, dialogue and good will, in which knowledge is generated, constructed through a complex process of reflection and negotiation. In such communities of practice, learners move and change roles within the community in accordance with their individual characteristics and needs, individualized understanding of the process of academic maturation and learning, their perceived roles and objectives they set for themselves along the way. The qualitative survey we conducted within the scope of a larger ongoing international project *Academic Writing Across Continents* (AWAC) has provided us with an insight into the way university students interpret and understand their own roles and activities when faced with challenges of independent academic research and writing.

The participants' answers reveal a high level of academic maturation in different aspects of their engagement, starting from researching, to reading, and writing. One of the crucial themes we were able to pinpoint has been the importance of intertextuality. In fact, intertextual interpretation of materials the students explore prior to engaging in the writing process seems to be an initial stage in identifying important and relevant research questions. When it comes to self-evaluation of written outcomes, these participants have stated that they tend to distance themselves from the texts and search for points that might be relevant to their target audience, which proves the participants' awareness of different interpretations of the same texts. However, we have also suggested that one of these alternative interpretations should include a heightened critical analysis of the writer's voice in relation to the specific context in which the text has been produced, allowing thus the reconsideration of one's own identity and role in the larger community. Furthermore, all Ph.D. students confirmed the value of participation in their respective Teacher-Student communities of practice and the importance of supportive environment both with respect to their professors and their peers. Interestingly, writing and participation have been treated as inseparable aspects of the same process, which is understandable given that most academic activities have traditionally been directed toward the creation of the written product. However, if focused only on the creation of the academic text, the students might not become fully aware of their role in the larger academic but also social, cultural, economic, political community so this aspect of their metacognitive knowing should be explicitly addressed throughout the university program. In the last section of the paper, issues related to social power and anxiety in academic production among the Ph.D. students were investigated. The findings again indicate that they all feel safer having a heterarchic, *bona fidae* community of practice consisting of professors and their academic peers by their side when making those first, crucial steps in the world of academia. They also demonstrated a high degree of awareness that academic maturation is a process, an evolution, which takes time and which is supposed to challenge them and push them to the limits of their abilities in order to help them expand their academic horizons and allow them to become more self-confident and efficient in order to produce high quality academic materials (dissertations, articles, books, etc.), and that failures are a normal part of this maturation process which can and should be viewed as measures of progress rather than incorrigible mistakes.

It is our belief that this research provides us with solid evidence that the final objective of any learning and teaching process should be a creation of a sustainable and continuous support network fostering academic and personal encouragement, self-criticism, self-confidence, into which new researchers, new topics, new research approaches and points of view can be included and evaluated critically but constructively, thus opening up space for young researchers' successful inclusion into the larger national, regional and international academic community. In times when education should be viewed not as acquisition of preexisting knowledge, but rather as a continuous, integrative, hetererachic, problem solving oriented construction of skills and competences, we find it necessary to keep on analyzing our own understanding of the process and the impact our teaching and research ideologies have on our graduate students, our future academic peers. All that in line with a postmodern educational ideology which must include a number of factors related to socio-political, historical, cultural and power relations into any account of the cognitive and socio-cultural aspects of academic maturation.

Appendix

Questions for self-report

Researching

Describe the steps you have fulfilled to construct the question that guides your research.

Describe the way you organize your research day by day.

Cite the criteria adopted to construct your research methodology.

Evaluate if you know well enough the main research procedures existing nowadays.

Evaluate how you organize the hierarchy between your research day by day to methods and theories you claim to have chosen.

Describe the impact of the presence of your supervisor (or other partners) over your research.

Describe the ways you use to read articles, books, theses etc.

Reading

Name what you read (articles, books, theses etc.).

Explain what your reading difficulties are.

Tell us how you organize yourself to read.

Evaluate your own reading process.

Explain how you read your own writing.

Describe the impact of the presence of your supervisor (or other partners) over your reading process.

Writing

Name what you write (summaries, essays, chapters etc.).

Describe the ways you use to write your texts.

Tell us how much and how often you write.

Explain what your writing difficulties are.

Tell us how you organize yourself to write.

Evaluate your own writing process.

Try to describe the imaginary of reader you have in mind while you are writing.

Describe your own texts.

Describe how you think your own texts should be.

Evaluate the ways your reading of your own texts makes you rewrite them.

Describe the impact of the presence of your supervisor (or other partners) over your writing process.

Participating

Name your regular academic activities.

Evaluate the much you consider what other people around the world think is important when you choose your activities.

Cite the criteria adopted to choose the disciplines you have studied during your doctorate course.

Cite the criteria adopted to choose complementary academic activities (congresses, seminars, spontaneous readings etc.).

Evaluate the impact of your academic activities (regular and complementary) over your training as a researcher.

Describe the impact of the presence of your supervisor (or other partners) over your academic participation.

Socio-cultural aspects: Interaction with other members of an academic community

Do you feel pressure from your academic peer group when approaching a research topic (to be the first, to be the best, to be innovative, to be creative, etc.)?

Do you feel pressure from your adviser? Please, elaborate.

How do you feel in light of the fact that your academic work will be evaluated by different members of academic communities (both national and international), when preparing a term paper, a manuscript for publication, a Ph.D. dissertation? Please, elaborate.

Does a language choice has an impact on the way you feel when working on a research topic, or preparing a manuscript? Please, elaborate.

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