

## **BETWEEN EXPECTATIONS AND GENERATIVE UNCERTAINTIES: AN ACTION STUDY IN HIGHER SECONDARY SCHOOL**

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### **Abstract**

Uncertainty in education is frequently seen as something that may trigger various defence mechanisms (Jordan, 2015) or lead to feeling confused and lost. Generative uncertainty may be productive (Mint, 2016), enhancing learning and fostering professional growth (Lygo-Baker, 2019).

This paper presents an action study which main goal was to investigate students' and teacher's uncertainties brought about by re-organization of learning and teaching activities in the form of an intervention in higher secondary school English classes. Students were tasked with creating study aids for their peers and asked to articulate their uncertainties.

In analysing the uncertainties articulated by the students, uncertainty was approached as resulting from a triadic relationship. This relationship is characterized by a situation where the student (1) is responsible for carrying out tasks (2) to the teacher (3). Similarly, teacher is performing their social role as an educator, being responsible for the society (Bardone et al., 2017). Such a relationship may affect teaching situations reflecting the specific uncertainties experienced by students and teacher and the way such uncertainties may foster learning, growth, and educational change.

From the intervention, three types of uncertainties were identified: uncertainties regarding expectations (students were not sure what they were expected to deliver), regarding the content (whether students' work would be of the necessary quality) and regarding the triadic relationship (students' and teacher's focus turning increasingly towards being responsible for the process rather than responding to expectations).

**Keywords:** *Generative uncertainty, higher secondary school, triadic relationship, action study, responsibility.*

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### **1. Introduction: The role of uncertainty in education**

The occurrence of educational innovation brings out uncertainties related to transformation. Educational innovation forces primarily teachers and students to manage a range of choices, thus creating uncertainties. Such uncertainties are not problems to be overcome but triggers of potentially generative space in learning and teaching.

The concept of uncertainty has been researched in social sciences such as entrepreneurship studies (Garud et al., 2010), environmental studies (Lloyd and Raikhel, 2018), policy research (Dewulf and Biesbroek, 2018), science and technology studies and sociology (Fochler and Sigl, 2018). In educational sciences, uncertainty has been connected with teacher education (Schuck et al, 2018) and the development of "pedagogical phronesis" (Birmingham, 2004).

According to Jordan (2015) uncertainty is a subjective experience akin to doubting, wondering and being unsure of what the future will bring. It is an active situation where the subject must determine a cause of action (Biesta, 2015) in a field where all options are open, and the decision-maker cannot rely on the past experiences and solutions already familiar to them (Arendt, 1970).

Teaching and learning are characterised by chronic uncertainty (Biesta, 2015; Labaree, 2000). No teaching situation will reproduce itself (Sinnema et al., 2017) as teachers and students are dealing with unpredictable and unfamiliar situations (Floden & Clark, 1987). Pedagogical deliberation must adapt itself to "what it finds, responsively, and with respect to complexity" (Kessels & Korthagen, 1996, p 19). Uncertainty is constitutive of learning, since acquiring "something new" is perpetually connected to the situation where the habitual way of perceiving something in the world is dismissed (Bohm, 2004). What students and teachers experience and express when being in a situation that is not determined and still open to further developments, is uncertainty.

Uncertainty in teaching and learning may be productive (Mintz, 2016) and generative, thus favourable to learning for students and professional growth for teachers (Lygo-Baker, 2019) but it

may also be a trigger for various defensive mechanisms (Jordan, 2015) as it may lead to feeling confused and lost. Students' and teacher's uncertainties are interconnected and affect each other, forming a triadic relationship. This relationship is characterized by a situation where the student (1) is responsible for carrying out tasks (2) to the teacher (3). Similarly, teacher is performing their social role as an educator, being responsible for the society (Bardone et al., 2017). Such a relationship may affect teaching situations reflecting the specific uncertainties experienced by students and teacher and the way such uncertainties may foster learning, growth, and educational change. In cases where teachers create learning activities that are straightforward and allow students to achieve the learning outcomes and gain a sense of achievement, it may finally lead to avoidance of more complex and realistic situations, thus leading to "postponement of opportunities" (Hare, 2003). A negative effect of such process can be the rise of overconfidence in students which is connected to how knowledge is delivered, reflecting on teacher's preference of low uncertainty levels (Testa et al., 2020). Schuck and Buchanan (2012) noticed that teacher education programs tend to focus on confidence and self-efficacy, thus undermining the value of doubt and wondering.

## **2. Focus of the article: Students' and their teacher's uncertainties**

The study this article discusses focuses on re-organisation of teaching and learning activities carried out by a higher secondary school's English teacher working in a private school in Estonia. The school was founded in 2000 and currently there are approximately 1000 students aged 7-19. The main aims of the teacher were to give the students a more active role during the study process and move towards a more self-directed form of education thus utilizing the principles of "learning by teaching" (Fiorella & Mayer, 2013). The teacher with the help from a university researcher developed and implemented an intervention which consists of a didactic unit based on the requirements of the curriculum. While implementing the intervention, students gave feedback on their uncertainties and the teacher kept a journal recording hers. The article discusses 1) the students' uncertainties as their role changed because of the re-organization of learning and teaching activities and 2) the teacher's uncertainties as articulated in relation to re-organising her teaching practices. As most of the intervention was carried out during the time of COVID 19 lockdown with the help of digital technologies, the question of whether these are another potential source of uncertainties is also in the background.

## **3. Methodology**

The research was conducted as an embedded case study, characterised by *multiple units of analysis* (Budiyanto et al, 2019; Scholz and Tietje, 2002) with each of them focussing on a different aspect related to the case - an intervention overlapping with a didactic unit. The intervention followed the principles of action research (Baskerville, 1999) as the whole process 1) was committed to change through action; 2) the intervention targeted generating changes in complex social setting; 3) practical and theoretical concerns are connected; and 4) the process was intended to yield reflections. Data was collected and analysed following the principles of co-researching which is based on the involvement of non-professional researchers in a study (Bergold and Thomas, 2012). The co-researcher – the English teacher – was an integral part of the study from the very beginning and provided her comments at every step of the intervention. The role of the co-researcher was to collect data as an observant participant (Moeran, 2009). Students' reflections were collected anonymously, using Google Forms. Asking students to reflect on their uncertainties provided them with an opportunity to contemplate which, according to Jordan (2015) is a resource for learners facing uncertainty. Students' answers were then analysed by the teacher and university researcher and complemented by teacher's reflections. Content analysis was carried out to categorize different types of uncertainties.

## **4. Participants**

Prior to the intervention, the teacher had already experimented with more participatory forms of teaching, asking students to contribute their own materials for grammar, listening and reading tasks and experiment with unfamiliar software when creating presentations. Distance learning enabled the teacher to partly employ the principle of "learning by teaching" with her higher secondary school students. The intervention was carried out with two groups of Year 12 students (aged 18-19, first iteration) and one group of Year 10 students (aged 16-17, second iteration) tasking the student to create a study aid on an area of English (grammar for Year 12 and vocabulary for Year 10) that would support their learning and be used by others studying the same topic. The language groups were divided into smaller teams of 3-4 students and each team was given a different topic. The students were free to choose any means and tools the considered best suitable for understanding the material. They were given the 'end product' – what the

users of their study aid need to know after having used their work. The pattern of the iteration was the same for both groups. During the intervention, the student had the chance to discuss their work either individually or during prescheduled webinars. Students were asked to reflect on their uncertainties at two checkpoints during the intervention: immediately after learning about the task, after finishing their study aid. The students were also asked to reflect on the whole process at the end of the intervention. All data was collected anonymously via Google Forms and the respondents could decide themselves whether they preferred to respond in English or Estonian.

## 5. Results

### 5.1. First Iteration

The first iteration consisted of 24 students belonging to two language groups in their final year of secondary education. Their major uncertainty concerned the study aid as students were not sure what was expected. The uncertainties students mentioned ranged from ‘where to start?’ to ‘What the final outcome should look like?’, to the length and level of details. Students mentioned that the task “had no boundaries”, making them “figure it out” themselves and not being sure what “form” the final product should take. Uncertainties related to the quality of the study aid caused students to wonder whether the study aid would be “understandable for everyone”, “useful”, or “concise” and how the users of the study aid would “cope with the exercise we have provided them with”. As the first iteration tasked the students with creating a study aid for grammar, participants expressed concern about their knowledge. One student pointed out that he/she was not sure how to formulate the study aid. Another respondent indicated that the task was not a straightforward one as “it made me wonder how it would be possible to easily explain a complex subject to as many students as possible since this topic is hard for myself”. After creating the study aid, the uncertainties expressed by students mainly concentrated on how the fellow students would receive their work, whether it would be sufficiently helpful, clear and interesting. At the end of the intervention the students were asked to think back to the process. 20 students from 24 said that they would like to try something similar in the future. The fact that the task was a demanding one, was expressed by the opinions that the task was quite time-consuming, and the respondents would not prefer to do it “with every new theme”. On the other hand, the responses show that students considered the task enriching and broadening their perspective, and instead of consuming the material take a more active role and understand better what being a teacher might be like.

The teacher’s uncertainties revolved round the product. It was a surprise to her that the final products were quite similar to the ones she would create – slides, worksheets, links to online sources, video explanations. The students working with the study aids said that if they had not known these had been made by Year 12 students, they would have thought the materials had come from a grammar book or from the teacher. This caused the teacher to wonder about school making students think “inside the box” and about her own role in fostering such approach. As the teacher chose not to interfere with the design process while being available for questions and clarifications, she wondered if interim discussions with the groups would have helped students become more creative. Since no teams used the opportunity of discussing their work with the teacher, this gave ground to the question of whether students are willing to reflect on what they are doing. None of the teams reported any issues with online collaboration and it was seen as something that supported them when dealing with doubts and considering possibilities. There was one team that reported in connection with dividing the tasks and communication. Although there was nothing to point the other way, the teacher still remained doubtful whether this was actually so or whether other teams chose not to report their problems.

### 5.2. Second Iteration

The second iteration involved 16 students from year 10, a class that had been formed only two months before the intervention took place. The task was adopted to the curriculum and included a vocabulary learning task. The students had to evenly distribute a vocabulary list among themselves, form pairs, create a study aid for and try out study aids created by at least four other pairs. When introducing the task, the teacher this time stressed the need to reconsider the ways they learn vocabulary and come up with something different from what students were used to.

Again, the major source of uncertainty was related to the nature of the task. One of the students pondered what “original and innovative” means “in these days”, implying that it is not something easy to do. The condition was also problematic for another respondent who said that it was not easy “to find a new task type”. Students were worried that another pair coming up with the same kind of task may jeopardize their chance of being innovative. Some students were unclear of what they had to do and had to “read the instructions multiple times to exactly understand what we had to do”. As the students were not able to meet in class because of the COVID 19 restrictions, one of the students remarked that he or

she was lacking the experience of working in pairs online. Another student commented that the students had to “rely on each other and communicate very closely [...]” when choosing the vocabulary for the task. After the task was completed, uncertainties regarding the quality of the study aid arose. The main issues voiced were whether their work was good enough and what would happen next. In the final reflection, students pointed out that the intervention had been something different from “just doing plain exercises” and appreciated the task as being “fun” and “eye-opening”. One respondent pointed out that he/she actually obtained new vocabulary while creating the study aid (“it is like a two in one task”). A critical comment from one of the respondents suggested that everybody should have been given the entire wordlist rather than a predetermined number of words. Although online collaboration had been a major source of uncertainty at the beginning of the intervention, the students valued the chance of collaboration and socialization, the intervention “giving them an excuse to talk to someone new” and supporting the development of class community. Year 10 students reflected that their role had changed from passive consumers to active content creators which required them to find reliable web sources and trying out such digital tools they had not used for creating something before. The responses show students recognizing the difficulties of content creators: “it is not easy to do something interesting and different for students” and developing a new appreciation for teacher’s work. The students also developed their understanding of “good teamwork”, as they “couldn’t rely on a teacher, more on each other”.

While students appreciated the task, one of the teacher’s uncertainties with this class was whether the it was too easy. As the group was a new one to the teacher, she wondered whether the iteration taking place online only might have created an additional barrier that would not have been there had the intervention taken place in class setting. As both Year 10 and Year 12 interventions were carried out as curricular activities, the teacher was uncertain whether students would take the task seriously. Students had to realize that the vocabulary they were working with would eventually be checked in a test. If the task had not been demanding, students might not have taken it seriously. Yet another uncertainty the teacher had was in connection with the “fun” element of the task. Some tasks might have created more delight for the creators rather than the users -e.g. googling for different types of exercises and choosing something absurd. This was reflected in the group’s comment during a webinar after the intervention had ended as word had spread about certain tasks being “pointless” and being subsequently skipped by other students. This enticed the teacher to consider how to preserve what is enjoyable in the task while reinforcing a serious approach to it.

## 6. Discussion and conclusion

In the article uncertainty is perceived as a subjective experience of a situation where issues have not been determined and settled yet and as such are open to different possibilities. In school setting, it is teachers and students who take responsibility for resolving such situations. Although uncertainty can be conducive to learning for students and professional development for teachers it may also be a trigger to various defence mechanisms (Jordan, 2015). Such ambiguity can be productively dealt with within the triadic relationship that students and teacher are involved in.

When looking at the uncertainties the students express, there is a clear difference of those uncertainties related to expectations and the ones that can be seen as generative or productive. The shift from one to another can be seen dependent of triadic relationship. Students expressing concerns regarding the nature of the task can be seen as students focussing on what they thought the teacher might want them to produce. This can be seen as an indicator of students feeling the need to respond to the teacher, although the task was such that neither students nor teacher could know “the answer” beforehand. Such a situation may drive the teacher face her own uncertainties. If these take the form of providing more scaffolding or instructions, the students may be prompted as to what the desired outcome is. When the outcome remains open, the teacher maintains the role of a supervisor who points the students towards an open space and encourages them to continue their inquiry. Students expressing concerns regarding the quality and usefulness of their study aids can be seen to have experienced a shift in their focus away from what teacher might expect to what they could create together. This may also be considered a shift in perspective as the students understood that have a chance to create something that would help their peers. Such uncertainty can be seen as something truly reflecting the ambiguity of the task and might lead students take responsibility for the situation. The year 10 students who were concerned about online collaboration also faced an open situation and took responsibility for it, in due course not only completing the task but also learning to know each other better and strengthening their study community. From the teacher’s perspective, generative uncertainty requires finding a balance between being responsible for the students and providing open space for various interpretations. Whether uncertainties become generative or not depends on how they are managed within the triadic relationship between students and teacher.

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