Analysis of sources of anxiety among Swiss university students experiencing Continuous Assessment for Learning and their implications for designing assessment in higher education

Practitioner Research
In Higher Education

University of Cumbria
Online First pages 126-141

Céline Girardet
University of Geneva

Abstract
Student anxiety in high-stakes assessment environments is a well-documented concern, yet limited attention has been given to how assessment design can inherently alleviate this anxiety without specific interventions. This study addresses this gap by examining how Continuous Assessment for Learning impacts anxiety perceptions among Swiss university students in a first-year Education Sciences course. Continuous Assessment for Learning is designed to integrate diverse interrelated tasks that serve both formative and summative assessment purposes, and aims to foster the development of academic and cross-curricular skills through a variety of assessment practices involving students, such as self-assessment and peer feedback. After completing each of eight assignments, students were asked to rate their anxiety levels and identify anxiety sources through a questionnaire. Categorical content analysis revealed the multifaceted and complex nature of students anxiety sources, some of which can be strategically addressed by educators. The findings offer actionable insights for designing assessment, with sources of anxiety to avoid while retaining those that support students' self-regulation of learning in higher education.

Keywords
Continuous Assessment for Learning; assessment design; student anxiety; higher education.

Introduction

Anxiety related to university examinations is a powerful phenomenon that can sometimes put students in a state of panic, burnout, and lead them to maladaptive behaviours. Worldwide, reports have shown an increase in student anxiety in the years that followed the Covid-19 pandemic (for a recent study in France, see Zulfiqarova and Dresp-Langley, 2024). In Switzerland, Maier et al. (2015) studied students' attitudes towards cognitive enhancing drugs. This study, involving over 3000 students from the universities of Basel and Zurich, and the Swiss Federal Institute of Technology Zurich, revealed that 498 students (16.3%) used prescription drugs (7.1%) or recreational drugs (10.9%, predominantly alcohol) at least once to cope with exam-related anxiety. At the University of Geneva, Student Life Observatory report (2015) showed that over 20% of students used stimulants to enhance exam performance in the six months prior to the survey. These findings underscore the need to examine anxiety in Swiss university students and explore contributing factors, such as academic pressure, expectations, and the competitive educational environment.

Many studies examined the consequences of anxiety for student educational outcomes (e.g. Barroso et al., 2021; Botes et al., 2020), but fewer focused on its implications for instructors when creating pedagogical and assessment designs. Indeed, assessment-related anxiety in higher education "is often regarded as a 'problem' sited in the individual, not in the pedagogy" (Cramp et al., 2012, p.519). Understanding sources of anxiety will provide insights for designing assessment that addresses students' needs and promote mental wellbeing. This research aims to broaden the understanding of students' experiences with assessment and promote supportive, inclusive learning environments that minimize unnecessary anxiety and maximize student regulation of learning.

Citation
Girardet, C. (2024) 'Analysis of sources of anxiety among Swiss university students experiencing Continuous Assessment for Learning and their implications for designing assessment in higher education', PRHE Journal Online First, pp. 126 -141.

This study focuses on Swiss university students' perceptions of anxiety throughout Continuous Assessment for Learning (later stated as ECPA). The assessment occurs in a first-year Education Sciences course prior to an admission exam for primary teacher education. At the end of the first year, grades count towards program admission, with only 100 students selected. This high-stakes environment is appropriate for the present study, since University entrance exams show one of the largest negative relationships between anxiety and performance (von der Embse et al., 2018).

Theoretical framework

Given the high-stakes environment of our study context, where anxiety levels are expected to be high, it is an ideal setting for examining how ECPA can reduce evaluative stress. This section outlines sources of test anxiety from the literature, the conceptual model of ECPA, and how its features can alleviate anxiety. While it is normal for students to experience some degree of anxiety in stressful situations (Zeidner, 2014), this paper focuses on mitigating excessive and unnecessary assessment-related anxiety.

Sources of assessment-related anxiety

Various studies identified multiple sources of test anxiety (i.e., anxiety focused on evaluative situations), highlighting its complexity and diverse contributing factors. Test anxiety varies with personal characteristics like gender (higher in women), minority status, and trait anxiety (Zeidner, 2014). In their meta-analysis including 238 studies, von der Embse et al. (2018) found that test anxiety correlated with a range of personal variables such as self-regulation, self-efficacy, self-esteem, academic confidence, and intrinsic motivation. Wadi and colleagues (2022) identified high self-expectations, negative self-thoughts, and self-negligence. Social comparisons also link to anxiety (Zeidner, 2014) due to fear of negative evaluation (Downing et al., 2020).

Experiential factors like prior experience with similar tests reduce anxiety, while lack of experience increases it (von der Embse et al., 2018). Repeated past failures can elevate test anxiety (Zeidner, 2014). Situational factors include parental pressure (Putwain et al., 2010), heavy curriculum (Wadi et al., 2022), and competitive classroom environment (Zeidner, 2014). Assessment conditions such as assignments presented as evaluative and consequential (Von der Embse et al., 2018), and sped up time conditions (Zeidner, 2014) can also increase anxiety.

The first aim of this study is to explore students' perceived sources of anxiety through Continuous Assessment for Learning, which is presented in the next section.

Continuous Assessment for Learning (ECPA) as an assessment design likely to alleviate student assessment anxiety

Despite extensive studies on factors contributing to student anxiety and stress, the role of instructors and lecturers in reducing student anxiety is underexplored (Hsu and Goldsmith, 2021). Consequently, the second aim of this study is to explore strategies to alleviate assessment-related anxiety when designing assessment in higher education.

We have conceptualized Continuous Assessment for Learning (ECPA) in previous work (Mottier Lopez, 2021; Mottier Lopez and Girardet, 2022; Mottier Lopez et al., 2021), drawing on assessment theoretical models and on studies about formative assessment training and professional development (e.g., Trumbull and Gerzon, 2013). ECPA designs assessment as integrated into teaching and learning, repeatedly involving students in the assessment process through tasks such as co-constructing criteria, self- and peer-assessment, self- and peer-feedback. It invites students to deeply reflect on assessment. It includes various modalities to accommodate diverse student preferences in an inclusive perspective:

written or oral assessments, individual or group, face-to-face or remote, and various digital tools (Mottier Lopez et al., 2021).
ECPA aligns with theoretical assessment models sharing convergent values:

- Formative assessment and its broadened conception as developed in the French-speaking literature (Allal and Mottier Lopez, 2005), that promotes integrating assessment into teaching and learning and actively involving students in assessment.
- Assessment for Learning (Broadfoot et al., 1999), aiming to 'identify the next steps to build on success and strengths as well as to correct weaknesses' (p.7).
- Sustainable Assessment (Boud, 2000), drawing attention to how assessment can support continuing learning (Boud and Soler, 2016).
- Authentic assessment (Wiggins, 1990), focusing on 'student performance on worthy intellectual tasks' (n.p.) that are complex and challenging.
- Criterion-referenced assessment (Brookhart, 2022), emphasising the importance of using assessment criteria to help students 'develop a conception of what it is they are trying to learn and to monitor and adjust their learning' (p.5).

ECPA aims to develop student assessment literacy (e.g., Hannigan et al., 2022) through tasks that help students understand assessment, set learning objectives and success criteria, become trained assessors of others' and their own learning, communicate informed judgement, self-regulate, and manage assessment-related emotions.

While not specifically designed to reduce anxiety, ECPA's features align with practices shown to alleviate it. Hsu and Goldsmith (2021) recommend "alternate means of assessment to reduce high-stakes tests that lead to high anxiety, or modify the structure of exams to lower stress" (p.3). ECPA does this by breaking assessment into diverse, interrelated tasks.

Wadi et al. (2022) advocate for more formative assessments to better prepare students, addressing anxiety caused by poor preparation (Zeidner, 2014). Improving students' study skills (Hsu and Goldsmith, 2021; Zeidner, 2014), and promoting active learning strategies (Downing et al., 2020; Hsu and Goldsmith, 2021) are also important. ECPA helps students learn course contents and develop assessment literacy and self-regulation skills through formative assessment activities.

ECPA's diverse modalities encourage group study opportunities, which can alleviate test anxiety (Wadi et al., 2022), allowing students to learn from peers and hear different perspectives (Downing et al., 2020). Knowing their group members can further reduce anxiety (Downing et al., 2020).

Encouraging metacognitive processes can help manage anxiety (Zeidner, 2014). Specific interventions, like having students write about their anxiety, reduce stress and improve performance (Hsu and Goldsmith, 2021). Reflecting on assessment experience is a feature of ECPA.

Constructive feedback is essential (Wadi et al., 2022). Hsu and Goldsmith (2021) emphasize choosing words carefully, as negative feedback is 'especially detrimental to anxious subjects' (Zeidner, 2014, p.277). Framing errors as natural and useful, and validating student thinking can also be beneficial (Downing et al., 2020). Avoiding fear appeals is critical, as these can increase test anxiety, lower motivation, and impair academic performance (Putwain and Remedios, 2014). Von der Embse and colleagues (2018) suggested that presenting assessment as a learning scenario could reduce test anxiety. Making class enjoyable (Wadi et al., 2022), using humor, and connecting with students can further lower anxiety (Hsu and Goldsmith, 2021). Thus, instructors' communication around assessment plays a significant role in moderating student anxiety.

Despite the recognition of these factors, there is limited research on how assessment design (and none regarding ECPA specifically) can inherently reduce assessment-related anxiety without explicit interventions. This study addresses this gap by examining a design 'as is' that wasn't specifically created to reduce anxiety but has inherent characteristics that may do so. While the literature often emphasizes broader institutional steps not directly applicable to instructors (Hsu and Goldsmith, 2021), this study contributes by exploring how carefully designed assessment for learning can inherently reduce unnecessary anxiety, thereby offering practical insights for instructors.

Accordingly, this study aims to answer the following research questions: What are the sources of anxiety reported by students while experiencing Continuous Assessment for Learning? How can instructors adjust their course and assessment designs to reduce unwanted assessment-related anxiety? After describing the research methods, this paper shows descriptive statistics about students' anxiety levels through the ECPA assignments, exposes students' perceived sources of anxiety, and proposes insights for instructors to mitigate unnecessary triggers of anxiety while retaining those that contribute to student learning.

Methodology

Context

The certification of the course is based on eight articulated formative assessment tasks:

- T1 Scientific article analysis. Students read an article on assessment and regulation of learning and answer questions to assess their understanding of the text.
- T2 Initial production. In groups of four, students are given an authentic pupil's work and imagine ways to involve the pupil in assessment processes to promote their regulation of learning.
- T3 Peer feedback production. Each student individually provides feedback on the initial production of two groups of peers.
- T4 Feedback perception questionnaires. Each student receives eight pieces of peer feedback and fills out a questionnaire about their perceptions of each feedback, which teachers then send to the respective feedback authors.
- T5 Peer feedback comparison. Individually, students compare four of the received feedbacks, indicate their (dis)agreement with their content, and suggest adjustments to their initial production.
- T6 Social moderation. In their initial groups of four, students compare their individual analysis of the feedbacks and discuss to reach consensus on which adjustments to make.
- T7 Regulation of initial production. The same groups improve their initial production.
- T8 Reflexive assignment. Each student conducts a conceptual reflection task, including a critical analysis of the experienced continuous assessment.

Table 1. Description of the ECPA tasks.

Task	Social mode	Time	Dates	Software	Points	Assessment criteria
T1	Individual	Outside class time	Oct17-Nov18	Word	4	Respect the guidelines
T2	Groups of 4	1 class	Nov21	Zoom Google Docs	1	Be there, do the work
T3	Individual	Outside class time + 1 class	Nov28-Dec12	Word	6	Criteria on student's feedback writing skills
T4	Individual	Outside class time + 1 class	Dec19-Jan16	LimeSurvey	3	Answer all questionnaires, respect the guidelines
T5	Individual	Outside class time + 1 class	Feb14-Mar20	Excel	4	Answer in depth
T6	Initial groups of 4	Outside class time + 1 class	Mar20-mar27	Zoom Excel	2	Suggestions for improvement match between members
T7	Initial groups of 4	Outside class time + 1 class	end on Apr17	Zoom Google Docs	16	Criteria on student's conceptual understanding
T8	Individual	Outside class time	May15-May29	Word	6	Criteria on student's conceptual understanding

Participants

Participants were 120 students (98 women, 21 men, and one non-binary person) who were enrolled in the course (2022-2023 academic year). Most students (N=104) intended to enter the initial teacher education program. Fifty students were already at the university the previous year, and 38 were in post-compulsory secondary education.

Data Collection

Immediately after each task, students reflected on their anxiety and confidence by answering these questions:

1. Rate your level of anxiety regarding this task (1= not anxious at all; 2= not too anxious; 3= a little anxious; 4= quite anxious; 5= very anxious)
2. Explain your response: What elements (task characteristics, ECPA, course, context, personal background, etc.) led you to select this response? (100 words minimum)
3. Rate your level of confidence regarding your attainment of the assessment criteria for this task. As a reminder, to obtain the X points attributed to this task, the assessment criteria are: [list of the assessment criteria]. (1= not confident at all; 2= not too confident; 3= a little confident; 4= quite confident; 5= very confident)
4. Explain your response: What elements (strategies, task characteristics, ECPA, course, context, personal background, etc.) led you to select this response? (100 words minimum).

At the end of the course (May 2023), a reflective questionnaire compared the anxiety experienced during ECPA to that in other university assessment formats.

To ensure ethical data collection, all data was collected using LimeSurvey by the author, who checked the task completion and immediately anonymized the data thanks to a correspondence sheet. Reflexive tasks were never read before anonymization. This procedure was explained to students, who confirmed awareness of anonymization before completing the survey. At the end of each survey, students had to answer: 'This questionnaire is part of the course. Do you agree that your responses (anonymized) may also be used for research purposes?'. Responses from students who answered "no" were excluded from qualitative analysis. Since the analysed data was anonymous and derived from course assignments, this research received ethical clearance from the University ethics committee.

Despite the efforts to communicate to students that their answers would be anonymous, we cannot rule out all confirmation bias, as reflexive questionnaires were associated with graded tasks. However, since questions focused on anxiety rather than course content, we believe honesty was encouraged.

Data Analyses

We used a qualitative methodology, complemented by descriptive statistics (using Jamovi) to present students' average anxiety levels throughout the assessment tasks and compared to other assessment formats. Categorical content analyses (using Atlas.ti) focused on 238 reflective assignments exploring sources of anxiety for the eight tasks, specifically for students who indicated high or moderate anxiety. We disregarded responses from students who reported lower levels of anxiety, to avoid introducing bias into the analysis since all students were required to provide a 100-word response to the question. By doing so, we may have excluded potential valid sources of anxiety from students who rated their anxiety lower on the scale.

Data was coded inductively, maintaining fidelity to students' own words, and subsequently creating broader categories based on the initial smaller ones. Interrater reliability was calculated on 10% of the data, involving three coders, with substantial agreement (Fleiss' Kappa = 0.741).

Following coding, analyses of the open-ended questions concerning confidence were performed. Sources of confidence were identified and, where applicable, matched with the sources of anxiety, adhering to the principle of coding saturation.

Results and discussion

The results section begins by presenting descriptive statistics, indicating that overall, anxiety levels were reported as relatively low. Subsequently, this section presents the outcomes of the categorical content analysis, detailing the sources of anxiety during the ECPA. These findings are organized in a manner that considers their implications for the design of assessments in higher education: Sources of anxiety can be external or intra-course, beyond or within the instructor's control, and can be wanted or unwanted.

Table 2. Number of students finding each exam format more, equivalently, or less stressful than ECPA.

	Written exam without documentation	Oral exam	Written exam with documentation	Individual project	Group project
Is more stressful than ECPA	108	104	75	28	21
Is the same as ECPA	5	4	34	71	70
Is less stressful than ECPA	5	10	9	19	27

Students perceived ECPA as less anxiety-inducing than a written or oral exam. The level of anxiety associated with ECPA resembles that of project-based exam formats.

Table 3. Descriptive statistics regarding reported anxiety for each task of the ECPA (1= not anxious at all; 2= not too anxious; 3=a little anxious; 4=quite anxious; 5= very anxious).

	M	SD	Min	Max
T1. Scientific article analysis	3.02	0.979	1	5
T2. Initial production	2.80	0.979	1	5
T3. Peer feedback production	3.27	0.964	1	5
T4. Feedback perception questionnaires	2.27	0.950	1	5
T5. Peer feedback comparison	2.63	1.080	1	5
T6. Social moderation	1.95	0.990	1	5
T7. Regulation of initial production	2.61	1.300	1	5
T8. Conceptual and reflexive assignment	2.99	1.240	1	5

The average anxiety reported by students throughout the different tasks is fairly low. Nevertheless, it varies highly among students. If some did not report any anxiety for any tasks, others reported constant anxiety regarding assessment: "It is particularly challenging to be anxious every time one hears the word 'assessment'" (stu136 about T2), "I have always been very stressed about school and evaluations" (stu022 about T1).

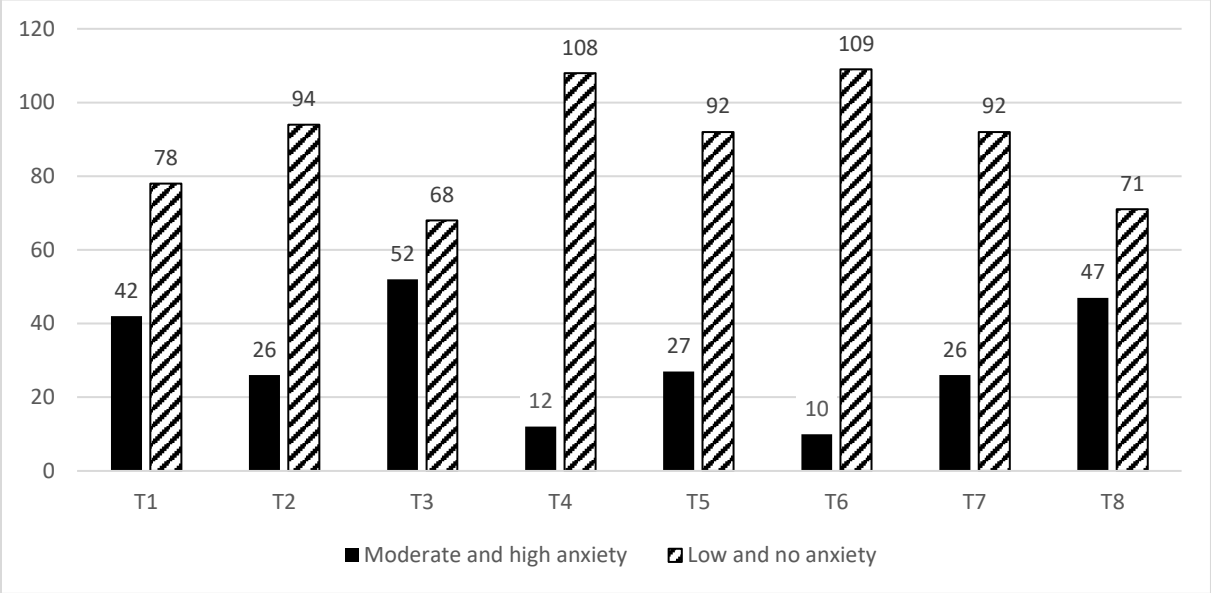

Figure 1. Distribution of students based on their anxiety levels for each task.

Figure 1. illustrates the distribution of students based on their selected anxiety levels, differentiating between levels 4 and 5 (quite anxious or very anxious) and levels 1 to 3 (not anxious at all, not too anxious, a little anxious).

Among the assessment tasks, T1, T3, and T8 elicited the highest reports of anxiety from students.

Results of the categorical content analysis resulted in a framework of the sources of anxiety. Initially, we provide an overview of anxiety sources that fall outside the instructor's control. Subsequently, we explore a more detailed description of anxiety sources that instructors can address in the design of ECPA.

External sources of anxiety beyond instructor's control

This section presents the reported sources of anxiety that originate from external factors beyond the course and are beyond the control of instructors. The following quote is a typical example:

> I failed my first year of law school last year despite all my efforts, despite working tirelessly for hours. My anxiety caused me to mess up everything, and since then, I feel like every small task is a mountain I can never reach because I don't have the abilities. … it makes me anxious because I'm afraid of failing once again
>
> (stu141 about T1).

Like stu141, some students (N=8) described anxiety arising from past "traumatic" experiences with assessment, which aligns with previous studies showing that past failures can increase test anxiety (Zeidner, 2014).

Research indicates that test-anxious students view various situations as evaluative and respond with preoccupation with past failures and anticipated negative consequences (Zeidner, 2014). In our study, a significant source of anxiety stems from concerns about future outcomes, particularly the fear of not being admitted into the teacher education program after completing the first year (N=25). This fear may be intensified for students who were conditionally admitted (N=5) or for those pursuing teaching

as a career change (N=2). Additionally, some students experience anxiety related to their prospects for future employment (N=2).

Certain anxieties were triggered by specific events. For instance, being ill during an assessment task (N=2), encountering technical issues around the time of submission (N=5), or dealing with personal problems (N=4). These sources of anxiety were unpredictable and beyond prevention measures. Furthermore, students expressed anxiety stemming from heavy workloads in their personal or professional lives outside of university (N=5).

Participants described certain anxieties as inherent to their nature, as personality trait, or as a specific disorder.

> I am never sure of myself, and I have never been sure of myself. I am never satisfied with what I produce. I always feel like I'm doing things wrong. I'm not really sure where the problem comes from, but I have gotten used to it
>
> (stu081 about T1).

Being inherently afraid of failure was mentioned 46 times by 36 different students, primarily in relation to T1. Twelve different students mentioned trait anxiety a total of 14 times. The term "perfectionist" was used by six different students on nine occasions to explain their anxiety. Eight students expressed an intrinsic lack of confidence, mentioning it ten times. Furthermore, three students reported experiencing social anxiety (all for T6), and one student indicated an attention disorder on two occasions (T5 and T8). This is in line with the extensive research showing links between test anxiety and personal variables (e.g., von der Embse et al., 2018).

Interestingly, it was not the same students who reported their anxious, perfectionist, or doubtful nature across different tasks. One hypothesis is that when the precise source of anxiety remains unidentified, students attribute it to a personality trait. Fear of failure was reported by 20 students for T1 but was only mentioned by a subset of students in subsequent tasks, indicating that their perceived fixed trait of fearing failure was not indeed fixed and could be alleviated.

Intra-course anxiety sources beyond the instructor's control

A subset of students (N=4) reported that peer discourse regarding the tasks, including comparisons between their own and peers' experiences, had an influence on their anxiety levels.

> I had a high level of anxiety regarding this task because, following several discussions with other classmates, they informed me that it required a significant amount of work …. Prior to these discussions, I wasn't very stressed about this task, but this changed after several conversations. And now, I still have a fairly high level of anxiety because I didn't find this task as challenging as others did, which worries me that I may not have performed the task well enough
>
> (stu029 about T3).

Additionally, concerns about how peers would perceive their work (N=9) emerged as a source of anxiety, particularly in relation to T3, which can be linked to student fear of negative evaluation, shown to increase student anxiety (Downing et al., 2020). This aspect is beyond the instructor's control and is closely tied to the nature of the peer feedback task.

Furthermore, losing points in a previous task was identified as a source of anxiety for a small number of students (N=3). Conversely, some students expressed obtaining all points in previous tasks as a source of confidence.

External sources of anxiety that can be mitigated by instructor's assessment design

A significant source of anxiety reported by 49 students was the heavy workload they faced in other courses while having to work on a task, which is consistent with Wadi et al. (2022)'s results. This anxiety was primarily mentioned for T3 (N=21) and T8 (N=23). T3 and T8 coincided with revisions for examination sessions, resulting in increased workload for students. On the other hand, students said that spreading tasks throughout the year reduced their perception of workload and elicited confidence, suggesting that the ECPA design was successful in reducing assessment stakes as advocated by Hsu and Goldsmith (2021).

As reported by von der Embse et al., (2018), first-time experiences appeared to induce anxiety, with 26 occurrences specifically associated with T1.

> This is the first assignment to submit for this course, and since each instructor has different expectations, we often have to adapt to them. Since we don't really know yet how these teachers grade (whether they are strict or not), I feel apprehensive
>
> (stu015 about T1).

These first-time experiences encompassed students' initial exposure to university (N=11), their first assignment in a university setting (N=9), or their first assignment for the course (N=8). This could also stem from uncertainty about the teachers' grading styles (N=10, with 5 associated to T1), which gradually diminished after seeing proof that they were graded fairly. Additionally, 22 students expressed anxiety regarding T3 as it required them to provide peer feedback for the first time. The utilization of new software also elicited anxiety, with one student mentioning Zoom for T2 and four students mentioning Excel for T5.

Some students (N=7) also reported anxiety for T8 simply because it carried the symbolic pressure of being the final task.

While these anxiety sources are not exclusive to our course and happen regardless (all things are novel at some point, there always is a first task and a last task), instructors can consider them when planning ECPA. When designing continuous assessment for learning, it is possible to mitigate anxiety by avoiding assigning heavy tasks at the end of each semester (this must be adapted according to each university context). Recognizing that the first task of the year may induce stress solely due to its novelty, one strategy could involve designing an intentionally easier initial task. This approach was implemented in our ECPA, yet T1 still caused significant anxiety. Additionally, avoiding the placement of the most challenging task as the final one can be an effective strategy. Informing students about the software to be used in the course at its onset allows them ample time to prepare if they are unfamiliar with such software tools.

Intra-course sources of anxiety to consider mitigating while designing ECPA

One significant source of anxiety related to novelty was the fear of the unknown. Not knowing their peers for the initial group assignment (T2) proved to be the most prevalent anxiety-inducing factor in this category (N=16).

> I don't know the persons with whom I work. I don't know if these are people I can get along with. I don't know if these persons work well. … We don't know each other, and we only had little time to getting to know each other
>
> (stu081 about T2).

Creating opportunities for students to familiarize themselves with their group members before commencing the first group work could be a beneficial approach (Downing et al., 2020). In our case, we encouraged students to engage in pre-task discussions, but further measures could be taken, such as creating digital spaces for them to connect.

The characteristics of the tasks themselves contributed significantly to anxiety levels. Students reported anxiety stemming from the perceived difficulty of the tasks (N=54), with T3 (N=23) being the primary contributor. Lengthy tasks, either due to a required minimum word count or time-consuming nature, were another source of anxiety (N=37), predominantly associated with T3 (N=23). Social modality of the tasks also played a role, as 33 students expressed anxiety regarding group work in all group-related tasks (18 for T2, 5 for T6, and 10 for T7). However, this anxiety seemed to be moderated by their perception of group cohesion, with strong group cohesion being a confidence booster. On the other hand, a small number of students (N=6) reported anxiety when they had to complete tasks individually. Numerical assignments caused stress for some students (N=10), primarily due to concerns about potential technical issues with Zoom. Word limits were another anxiety trigger (N=10), whether it was anxiety about reaching the minimum word count (N=12), especially for T3, or adhering to a word restriction (N=8), specifically for T8.

Time constraints for completing tasks also contributed to anxiety, whether it was a task spanning over a designated period with a deadline (N=27; T1=6, T3=13, T4=1, T5=3, T7=2, T8=2), or for T2, a task that needed to be completed within an hour and a half during the course (N=11). Students reported providing reminders for deadlines as a source of confidence.

These results emphasize the need for diversity in the design of assessments, as advocated by Hsu and Goldsmith (2021). Students' anxiety sources vary greatly in relation to task characteristics, indicating that there is no one-size-fits-all approach to task design for alleviating student anxiety. The strength of ECPA lies in creating different tasks with varying social modalities, occurring during or outside of class time, featuring different word counts, difficulties, lengths, and software requirements. The implementation of various assessment formats can foster a more inclusive assessment environment (Mottier Lopez, 2021).

The instructors' discourse surrounding the tasks was also perceived as a source of anxiety by some students, aligning with previous research results (e.g., Downing et al., 2020; Hsu and Goldsmith, 2021; Putwain and Remedios, 2014; von der Embse et al., 2018; Wadi et al., 2022). A few students found it stressful when tasks were presented as lengthy (T3, N=4), difficult (T3, N=2), important (T3 and T7, N=2), or easy (T1, N=1). We particularly emphasized that T3 was time-consuming due to previous student feedback. While anxiety arising from this discourse affected some students, it was considered a lesser price to pay compared to not providing any information about the task and having students feel anxious due to inadequate planning. Nevertheless, it is noteworthy to observe how the instructors' discourse can impact students' anxiety, even to the extent that describing a task as easy can evoke anxiety due to the fear of failing at an easy task.

Finally, doubting the task guidelines was another source of anxiety (N=29), primarily reported for T8 (N=19). Conversely, spending time discussing tasks, providing exemplars, and being available to answer students' questions about guidelines elicited confidence. We aim to enhance our guidelines based on student feedback each year, and T8 was a new addition in 2023. Research has demonstrated that well-designed assignment briefs that clearly outline the lecturer's expectations and provide consistent and appropriate details enable students to focus on the task, reducing their cognitive load and alleviating anxiety stemming from confusion and misinterpretation of guidelines (Walsh, 2021). This is something we implemented the year following this study.

Intra-course sources of anxiety that we want to keep

Students reported experiencing anxiety related to the characteristics of assessment and grading. The compulsory nature of all tasks, where absence of submission results in failure, was a source of anxiety (N=6) that we do not intend to remove. This requirement ensures that each task is completed within a specific deadline to facilitate the progression to subsequent tasks, which are interconnected.

The number of points assigned to each task was a significant factor contributing to anxiety (N=46), particularly for T3 (N=21) and T7 (N=16). T3 had the highest number of points allocated in the first semester (6 points), while T7 carried the highest point value in the second semester (16 points). Interestingly, students' anxiety regarding the number of points seemed to be relative to neighbouring tasks. Only eight students reported this anxiety source for T8, despite it having the same number of points (6 points) as T3. One aim of the ECPA is to minimize the perception of high-stakes assessment, since it is recognized as a major precursor of test anxiety (e.g., von der Embse et al., 2018). Through Continuous Assessment for Learning, the frequency of assessment opportunities increases while the individual impact of each assessment event decreases. By employing multiple tasks in continuous assessment, no single task carries a significant risk of failure (Girardet, 2021). Consequently, the fear of failure is reduced, as poor performance in a particular task will not significantly affect the final outcome, and students have opportunities to improve their results in subsequent tasks (Ecclestone, 2007). However, some tasks carry more points as they target the most critical learning objectives of the course, and this is an intentional design choice we do not wish to change.

Aligned with the difficulty of assessment criteria, some students (N=10) experienced anxiety for T3 and T7 due to the demanding nature of the criteria. Conversely, the perception of criteria as easy created confidence. ECPA incorporates both easier and more challenging tasks, with certain tasks specifically assessing students' conceptual understanding, necessitating higher standards. Therefore, this source of anxiety is not one we aim to compromise on.

When assessment criteria and standards are more demanding, they may intentionally refrain from providing students with some information. For instance, for a written peer feedback assignment, a criterion stating "in your feedback, concepts are used correctly" does not specify what is considered correct or incorrect usage. An example of a less demanding criterion would be ‘your feedback provides suggestions for improvement’. In relation to demanding criteria, students reported uncertainty regarding teachers' expectations (N=32) or doubt about their own performance and competence (N=72), primarily for T1 (N=11), T3 (N=26), and T8 (N=16). Our previous studies (e.g., Girardet, 2020, 2021; Mottier Lopez et al., 2021) demonstrated that students doubting their knowledge and competence while working on assessment tasks – considering they are given ample time to resolve their doubts – takes part in the regulation of learning. In the case of peer feedback, Girardet (2021) discussed how emotions of doubt and destabilization concerning content mastery can trigger a need for learning, which, when combined with evaluative pressure and sense of responsibility, acts as a significant catalyst for students' self-regulation. In a similar vein, Mottier Lopez et al. (2021) highlighted the importance of creating opportunities for students to receive multiple instances of peer feedback on their work, as advocated by Nicol (2020), to foster divergences that generate productive doubt conducive to the self-regulation of student learning. Doubt can therefore be useful, on the condition that we plan time for students to self-regulate while they work on the task.

T1 to T6 aim to prepare students for T7, which serves as the primary task for grading based on their understanding of course concepts, totalling 16 points. Observing that doubts regarding understanding and competence emerge in earlier tasks when the focus is on learning and almost disappear in T7 (N=3), when we seek to assess what students have truly learned, is a positive indication that the ECPA design is achieving its intended purpose: Allowing students to engage with varied sources of feedback,

navigate doubts, and develop competence leading to conceptual understanding by T7. The resulting feeling of competence was mentioned as a source of confidence.

> Task 7 was quite easy to accomplish since the previous tasks had set everything up for the optimal completion of this Task 7. I found the entire assessment throughout the year to be very coherent
>
> (stu030 about T7).

Sources of student confidence

Sources of student confidence often stood in contrast to the sources of anxiety. For instance, while challenging criteria evoked anxiety, easier criteria instilled confidence. Many sources of confidence resided within the students themselves, encompassing a range of strategies employed when approaching the task. Students expressed that carefully reading and adhering to guidelines provided a sense of confidence. Additionally, they mentioned engaging in self-assessment of their work using the assessment criteria. Other sources of confidence included employing diverse studying and working methods, such as breaking down tasks into smaller components, proactively managing deadlines, allowing multiple iterations before submission, and dedicating sufficient time to each task. Furthermore, students reported that testing the required software before undertaking a task contributed to their confidence. Although these factors are beyond the instructor's control, they underscore the significance of promoting school available resources (Hsu and Goldsmith, 2021), particularly during their first year of university.

Conclusion

This research underscores the significant variations observed in students' anxiety profiles concerning assessments and their underlying sources. Our findings highlight the intricate nature of these sources, encompassing intrinsic aspects of students' dispositions (e.g., inherent anxiety and perfectionism), anticipated professional pressures (such as admission exams), previous negative experiences with assessments, as well as specific events and circumstances. We discovered that features of assessment tasks and grading served as diverse sources of anxiety, along with factors like novelty, uncertainty, and doubt regarding performance, expectations, or guidelines.

To address this complexity, we propose the implementation of Continuous Assessment for Learning (ECPA) in higher education settings, utilizing interconnected assignments that support inclusive assessment processes (Mottier Lopez, 2021). Our study offers insights for instructors to mitigate unnecessary triggers of anxiety while retaining those that contribute to student learning:

- Diverse assessment tasks: Incorporate a variety of assessment formats, such as written and oral, individual and group tasks, ensuring that your assessments do not target students with specific assessment format anxieties.
- Clear assignment briefs and assessment criteria: Provide detailed guidelines and transparent expectations for assignments to alleviate uncertainty towards the tasks.
- Demanding criteria: Success criteria can be phrased to vary in levels of demand. The intent of a demanding criteria (e.g., “concepts are used correctly”) is to create a situation where students have to find information in the course material and through peer interaction to foster deeper understanding and critical thinking. Criteria can be designed to trigger some necessary doubt that can act as a lever for self-regulation.
- Instructor’s discourse: Be mindful of how tasks are presented, emphasizing the learning process over threats about performance outcomes.
- Balanced workload: Avoid assigning heavy tasks during high academic workload periods and spread assignments throughout the academic year to manage workload and reduce pressure.

- Early and incremental tasks: Design easier initial task to reduce anxiety related to novelty and build student confidence progressively.
- Peer interaction: Create opportunities for students to familiarize themselves with peers before group assignments, fostering a supporting learning environment.
- Software familiarization: inform students about required software at the beginning of the course to give them ample time for experimentation.

Finally, we advocate for educators to design reflective tasks within the ECPA framework that serve as tools for student self-reflection and enable teachers to regulate their teaching and assessment design throughout successive academic cycles, considering that self-reflection was also shown to alleviate assessment-related anxiety (Hsu and Goldsmith, 2021; Zeidner, 2014).

The relevance of the findings extends beyond the Swiss context: by tailoring assessment designs to reduce unnecessary anxiety while maintaining rigorous academic standards, ECPA designs can enhance student well-being in creating a more supportive and inclusive environment, can help them learn the course content, and teach them to become assessment-literate individuals for the longer-term.

Acknowledgments: I would like to express my gratitude to Professor Lucie Mottier Lopez, with whom I developed the ECPA design presented in this paper. I am thankful for her support and encouragement in allowing me to collect data in her course, which enabled the conduction of the present study.

References

Allal, L. and Mottier Lopez, L. (2005) Formative assessment of learning: A review of publications in French, in *Formative assessment: Improving learning in secondary classrooms*. Paris: OECD:241-264. Available at: https://www.oecd-ilibrary.org/education/formative-assessment_9789264007413-en (Accessed: 7 August 2024).

Barroso, C., Ganley, C. M., McGraw, A. L., Geer, E. A., Hart, S. A. and Daucourt, M. C. (2021) 'A meta-analysis of the relation between math anxiety and math achievement', *Psychological Bulletin,* 147(2), pp. 134-168. Available at: https://doi.org/10.1037/bul0000307 (Accessed: 7 August 2024).

Botes, E., Dewaele, J.-M and Greiff, S. (2020) 'The foreign language classroom anxiety scale and academic achievement: An overview of the prevailing literature and a meta-analysis', *Journal for the Psychology of Language Learning*, 2(1), pp. 26-56. Available at: https://jpll.org/index.php/journal/article/view/botesetal (Accessed: 7 August 2024).

Boud, D. (2000) 'Sustainable assessment: Rethinking assessment for the learning society', *Studies in Continuing Education*, 22(2), pp. 151-167. Available at: http://dx.doi.org/10.1080/713695728 (Accessed: 11 July 2023).

Boud, D. and Soler, R. (2016) 'Sustainable assessment revisited', *Assessment and Evaluation in Higher Education*, 41(3), pp. 400-413. Available at: http://dx.doi.org/10.108002602938.2015.1018133 (Accessed: 11 July 2023).

Broadfoot, P., Daugherty, R., Gardner, J., Gipps, C., Harlen, W., James, M. and Stobart, G. (1999) *Assessment for Learning: Beyond the black box.* Nuffield Foundation and University of Cambridge. Available at: http://www.nuffieldfoundation.org/sites/default/files/files/beyond_blackbox.pdf (Accessed: 11 September 2024).

Brookhart, S.M. (2022) 'Connecting grading with other assessment practices', *La Revue LEeE*, 6. doi: : http://dx.doi.org/10.48325/rleee.006.01.

Cramp, A., Lamond, C., Coleyshaw, L. and Beck, S. (2012) 'Empowering or disabling? Emotional reactions to assessment amongst part-time adult students', *Teaching in Higher Education*, 17(5), pp. 509-521. doi: http://dx.doi.org/10.1080/13562517.2012.658563.

Downing, V.R., Cooper, K.M., Cala, J.M., Gin, L.E. and Brownell, S.E. (2020) 'Fear of negative evaluation and student anxiety in community college active-learning science courses', *CBE-Life Sciences Education*, 19(2), pp. 1-16. doi: http://dx.doi.org/10.1187/cbe.19-09-0186.

Ecclestone, K. (2007) 'Commitment, compliance and comfort zones: The effects of formative assessment on vocational education students' learning careers', *Assessment in Education: Principles, Policy and Practice*, 14(3), pp. 315-333. doi: http://dx.doi.org/10.1080/09695940701591925.

Girardet, C. (2020) 'Lorsque les étudiant·es produisent et reçoivent des feedbacks entre pairs à l'université : étude des perceptions d'un dispositif d'évaluation continue facilité par le numérique', *La Revue LEeE*, 2, pp. 1-33. doi: https://doi.org/10.48325/rleee.002.04.

Girardet, C., (2021) ʻLorsque les étudiant·es produisent et reçoivent des feedbacks entre pairs à l'université : les émotions pour apprendre', *La Revue LEeE*, 5, pp. 1-35. doi: https://doi.org/10.48325/rleee.005.01

Hannigan, C., Alonzo, D., and Oo, C.Z. (2022) 'Student assessment literacy: Indicators and domains from the literature', *Assessment in Education: Principles, Policy & Practice*, 29(4), pp. 482-504. doi: http://dx.doi.org/10.1080/0969594X.2022.2121911.

Hsu, J.L. and Goldsmith, G.R. (2021) 'Instructor strategies to alleviate stress and anxiety among college and university STEM students', *CBE-Life Sciences Education*, 20(1), pp. 1-13. doi: http://dx.doi.org/10.1187/cbe.20-08-0189.

Maier, L.J., Liakoni, E., Schildmann, J., Schaub, M.P. and Liechti, M.E. (2015) 'Swiss university students' attitudes toward pharmacological cognitive enhancement', *PLOS ONE*, 10(12), pp. 1-13.doi: http://dx.doi.org/10.1371/journal.pone.0144402.

Mottier Lopez, L. (2021) 'Une évaluation continue pour apprendre durablement, une évaluation à visée inclusive', *Revue suisse de pédagogie spécialisée*, 11(4), pp. 9-16. Available at: https://ojs.szh.ch/revue/article/view/168 (Accessed: 11 September 2024).

Mottier Lopez, L. and Girardet, C. (2022) Une évaluation pour apprendre durablement : défis et dispositifs pour la formation universitaire des étudiants et des étudiantes en sciences de l'éducation, in Almeida de Oliveira, M. A (ed.) *Formação de professores e profissionalização docente: Práticas situadas*. Recife: Pipa Comunicação. pp.311-377.

Mottier Lopez, L., Girardet, C. and Naji, T. (2021) 'L'évaluation continue pour apprendre : enjeux de la pluralité des feedbacks entre pairs dans un cours universitaire', *Mesure et évaluation en éducation*, 44(2), pp. 1-34. doi: https://doi.org/10.7202/1090461ar

Nicol, D. (2020) 'The power of internal feedback: Exploiting natural comparison processes', *Assessment and Evaluation in Higher Education*, 46(5), pp. 756-778. doi: http://dx.doi.org/10.1080/02602938.2020.1823314.

Putwain, D. and Remedios, R. (2014) 'Fear appeals used prior to a high-stakes examination: What makes them threatening?', *Learning and Individual Differences*, 36, pp. 145-151. doi: http://dx.doi.org/10.1016/j.lindif.2014.10.018.

Putwain, D., Woods, K. and Symes, W. (2010) 'Personal and situational predictors of test anxiety of students in post-compulsory education', *British Journal of Educational Psychology*, 80(1), pp. 137-160. doi: http://dx.doi.org/10.1348/000709909X466082.

Student Life Observatory (Observatoire de la Vie Estudiantine) (2015) *Les étudiantEs et le dopage cérébral. Les feuillets de l'OVE*, 4. Available at: https://www.unige.ch/dife/files/9014/5571/7775/OVE_feuilelt_numero_4_smart_drugs.pdf (Accessed: 11 July 2023).

Trumbull, E. and Gerzon, N. (2013) *Professional development on formative assessment: Insights from research and practice.* San Francisco: WestEd. Available at: https://www2.wested.org/www-static/online_pubs/resource1305.pdf (Accessed: 18 June 2024).

Von der Embse, N., Jester, D., Roy, D. and Post, J. (2018) 'Test anxiety effects, predictors, and correlates: A 30-year meta-analytic review', *Journal of Affective Disorders*, 227, pp. 483-493. doi:

http://dx.doi.org/10.1016/j.jad.2017.11.048.

Wadi, M., Yusoff, M.S.B., Abdul Rahim, A.F. and Ahmad Zuky, N. (2022) 'Factors affecting test anxiety: A qualitative analysis of medical students' views', *BMC Psychology,* 10(8), pp. 1-8. doi: http://dx.doi.org/10.1186/s40359-021-00715-2.

Walsh, E. (2021) 'The role of effective communication on students' emotional response to assessment: Written assignment brief', *La Revue LEeE*, 5. doi: http://dx.doi.org/10.48325/rleee.005.02.

Wiggins, G. (1990) 'The case for authentic assessment, *Practical Assessment, Research and Evaluation'*, 2(2), pp. 1-3. doi: http://dx.doi.org/10.7275/ffb1-mm19.

Zeidner, M. (2014) Anxiety in education, in Pekrun, R. and Linnenbrink-Garcia, L. (eds.) *International handbook of emotions in education*. London: Routledge. pp.265-288.

Zulfiqarova, U. and Dresp-Langley, B. (2024) 'Student anxiety in the wake of the COVID-19 pandemic', *Academia Mental Health and Well-Being,* 1. doi: https://doi.org/10.20935/MHealthWellB7294.