

**Students' Exam Preferences and Associated Levels of State Evaluation Anxiety**

Annika Selesnew

S4654463

Department of Psychology, University of Groningen

PSB3E-BT15: Bachelor Thesis

Group Number 8

Supervisor: Prof. Dr. Rob Meijer

Second Evaluator: Dr. S.M. Stacey Donofrio

In collaboration with Kok Silke, Niggendijker Hage, Piepers Matsen, Takács Jurai,

Zhang Ziyang

June 21, 2024

*A thesis is an aptitude test for students. The approval of the thesis is proof that the student has sufficient research and reporting skills to graduate, but does not guarantee the quality of the research and the results of the research as such, and the thesis is therefore not necessarily suitable to be used as an academic source to refer to. If you would like to know more about the research discussed in this thesis and any publications based on it, to which you could refer, please contact the supervisor mentioned. Additionally, the generative AI tool “ChatGPT” was used for background information and for the discussion section of this thesis to improve grammar, spelling, and wording (see Appendix C). Lastly, to ensure readability, “we” is used consistently throughout this thesis, even though some parts are written individually.*

### **Abstract**

Educational assessment methods significantly impact students' learning approaches and experiences. However, there is a lack of research directly comparing students' preferences for different exam types and associated anxiety levels. While previous studies have explored students' preferences and anxiety responses for multiple-choice (MC) and open-question (OQ) exams, little attention has been given to performance tasks (PTs) as an alternative assessment method. This study addresses this gap by investigating students' preferences and state evaluation anxiety (SEA) across MC exams, OQ exams, and PTs. Using data from 128 students at the University of Groningen's Faculty of Behavioral and Social Sciences, this research employed quantitative surveys and qualitative analysis. The results showed a strong preference for MC exams over OQ exams and PTs. Furthermore, MC exams were associated with lower levels of SEA compared to OQ exams, while PTs showed no significant differences in SEA levels. However, the qualitative analysis revealed that each assessment type produced different anxiety-inducing aspects. The results suggest that using more MC exams may be beneficial. Further research is needed to investigate individual differences in exam preferences and to explore strategies to reduce SEA across assessment formats to enhance student well-being and academic performance.

*Keywords:* assessment, traditional assessment methods, alternative assessment methods, overall preference, state evaluation anxiety

## **Students' Exam Preferences and Associated Levels of State Evaluation Anxiety**

*Assessment* is an integral part of higher education (Saher et al., 2022). It refers to measuring and evaluating students' knowledge and abilities in any form. Assessment serves a number of functions, "including grading, evaluation of student achievement and supporting student learning" (Lynam & Cachia, 2018, p. 225). Beyond student evaluation, it also supports curriculum development and instructional practices, facilitating the refinement of both.

### **Assessment Methods**

Teaching staff can choose from a variety of assessment methods. Generally, one can differentiate between *traditional* and *alternative assessment methods* (Saher et al., 2022). Traditional or conventional assessment methods are typically solitary and time-restricted (Saher et al., 2022). They evaluate students' abilities at a specific moment, giving little insight into students' learning progression over time. Conventional assessment methods are further divided into closed-ended formats, such as multiple-choice (MC) exams, and open-question (OQ) formats (Hift, 2014). OQ exams require written responses by the students, for example, essay question exams.

In contrast, alternative assessment methods are often continuous rather than singular and time-restricted (Saher et al., 2022). They include performance tasks (PTs), such as written assignments (WAs) or group projects (Braun, 2019). PTs require students to respond to realistic tasks, which provide observable evidence of their knowledge, skills, and abilities. Altogether, alternative assessment methods are more practical and focus on advancing learning rather than solely measuring it (Medland, 2016).

## Choosing Between Assessment Methods

### *Psychometric Parameters*

End-term assessments assess and evaluate students' understanding and mastery of course content (Center on Standards and Assessments Implementation (CSAI) & WestEd, 2018). These evaluations are often high-stakes and carry significant consequences for the test-takers, such as determining entry into academic programs or college admission (Braun, 2019; CSAI & WestEd, 2018). Therefore, according to Hift (2014), they should not only adhere to certain standards but should also be reliable and valid.

**Reliability.** In the context of assessment, reliability refers to the consistency and stability of measurement outcomes produced by the assessment instrument (CSAI & WestEd, 2018). A reliable instrument should yield consistent scores over time and across different raters, ensuring that the results are trustworthy for meaningful decision-making. MC exams are often reliable (Braun, 2019; Hift, 2014). They provide questions with predetermined answer choices, which allows for consistent scoring and reduces subjectivity in grading. In comparison, open-ended formats and PTs involve subjective scoring; the interpretation of responses can vary among different graders, leading to inconsistent scoring and reduced reliability (Hift, 2014).

**Validity.** In assessment, validity refers to the extent to which the assessment accurately measures what it intends to measure (CSAI & WestEd, 2018). It ensures that the assessment results reflect students' knowledge and skills and provide meaningful information about their abilities. Open-ended formats and PTs are considered high in validity, as they allow students to demonstrate their deep understanding and critical thinking skills (Braun, 2019; Hift, 2014; Saher et al., 2021). In comparison, MC exams are perceived to primarily assess the recall or

recognition of factual information and may not capture the full range of students' understanding or abilities (Saher et al., 2021).

Yet, Hift (2014) provides compelling evidence for MC exams regarding their ability to measure higher cognitive skills and deep understanding of the subject matter. Ultimately, the phrasing of MC questions determines their ability to stimulate higher-order thinking. Moreover, several studies have found high convergent correlations between MC questions and open questions (Hift, 2014). Convergent validity refers to the degree to which both types of questions measure the same underlying construct. Thus, there seem to be no detrimental differences between MC and OQ formats regarding their potential validity.

Overall, MC exams seem valid, reliable, and efficient in assessing students' abilities. Thus, Hift (2014) challenges the continued use of open-ended formats in higher education and argues for their removal altogether. Like open-ended formats, PTs are criticized for their unreliability and time-consuming grading (Braun, 2019; Jones et al., 2021), which raises questions about their suitability as final examinations. However, while discussions about psychometric properties are necessary, they should not be the only factor when deciding which assessment method is most appropriate.

### **The Students' Perspective**

Evidence from studies conducted in the UK, Australia, USA, and Hong Kong suggests that students are dissatisfied with current assessment methods (Medland, 2016). Generally, students have limited choice regarding the format used in a particular course, with decisions typically made from the top down (Zeidner, 1987). These processes can limit students' autonomy and control over their learning, decreasing their satisfaction with the evaluation process

(Struyven et al., 2005). Yet, there is limited understanding of students' experiences with different assessment formats and their *overall preferences* (Zeidner, 1987).

### ***Multiple-Choice Exams Versus Open-Question Exams***

Regarding traditional assessment, Zeidner (1987) conducted a study among high school students, assessing their preferences for MC exams compared to OQ exams. He measured students' preferences for multiple items, including perceived difficulty, objectivity, and degree of anxiety evoked. His findings showed that students rated MC exams more favorably on most dimensions, including those stated above. A replication by Tozoglu et al. (2004) found similar results; MC exams were perceived as less difficult, more objective, and less anxiety-evoking compared to OQ exams. Moreover, Holzinger et al. (2020) examined medical students' preferences for different traditional assessment methods. Overall, the findings confirmed what has been found by previous studies; students preferred MC exams to OQ exams as they perceived them as easier to prepare for, easier to pass, and less subjective regarding the scoring. Additionally, Birenbaum and Feldman (1998) and van de Watering et al. (2008) confirmed students' preference for MC formats over OQ formats.

### ***Traditional Assessment Versus Alternative Assessment***

Yet, a more recent study found that students viewed traditional examinations as an inappropriate assessment method (Jones et al., 2021). Specifically, students perceived MC exams as restrictive and unfair because they felt these exams did not accurately reflect their understanding of the subject matter. In contrast, alternative methods were perceived as more favorable, as they allowed students to apply their knowledge and skills authentically. However, alternative assessment formats can lead to undesired effects if they are not implemented well, leading to increased stress and anxiety (Jones et al., 2021; Lynam & Cachia, 2018; O'Neill &

Padden, 2022). These effects may be attributed to the unfamiliarity of students with these assessment methods, whereas traditional methods, specifically MC exams, are well-known and therefore less intimidating (Jones et al., 2021). Students are accustomed to preparing for them and understand their requirements, making them more favorable.

### **Current Study**

In conclusion, when comparing students' preferences for MC or OQ exams, students favor the former (Birenbaum & Feldman, 1998; Holzinger et al., 2020; Tozoglu et al., 2004; van de Watering et al., 2008; Zeidner, 1987). However, the conclusions drawn from these studies are limited, as they exclude alternative methods. Even though there are studies assessing students' attitudes regarding PTs (Jones et al., 2021; Lynam & Cachia, 2018), it is unclear whether they would prefer them in direct comparison to MC exams. Therefore, this thesis aims to give insight into students' preferences for examination types beyond traditional forms.

Based on research indicating a general preference for MC exams over OQ exams (Birenbaum & Feldman, 1998; Holzinger et al., 2020; van de Watering et al., 2008; Tozoglu et al., 2004; Zeidner, 1987), and considering that alternative assessment methods remain relatively new and unfamiliar (Jones et al., 2021; Lynam & Cachia, 2018; O'Neill & Padden, 2022), we formulated the following prediction:

**Hypothesis 1.** Students prefer MC exams in comparison to OQ exams and PTs.

### **Evaluation Anxiety**

As indicated above, there are several reasons why students might prefer one type of exam over another. For example, students might prefer MC exams over other formats because they are less difficult, more objective, or less anxiety-inducing (Holzinger, 2020; Tozoglu et al., 2004; Zeidner, 1987). Studies suggest that students prefer assessment methods that cause little stress



and anxiety (Struyven et al., 2005; van de Watering et al., 2008). Indeed, anxiety is an issue for students globally, with today's youth showing increased concerns about achievement and career prospects (Sotardi, 2018). Recent studies suggest that 15% to 22% of students display increased levels of examination anxiety (EA) (von der Embse et al., 2018).

Evaluation anxiety describes an uneasiness when “performance is measured, judged, and compared to a particular standard of excellence” (Sotardi, 2018, p. 349). The components of EA are emotionality, cognitive worry, and distraction (Sotardi, 2018). Emotionality refers to physical reactions to testing situations, such as increased heart rate. Cognitive worry describes a preoccupation with anticipated failure (e.g., “I am going to fail my exam”). Distraction has recently been added as a third factor. Importantly, EA is associated with multiple adverse outcomes, including increased risk for depression and decreased test performance (von der Embse et al., 2018).

### ***State Evaluation Anxiety***

Generally, one can distinguish between trait evaluation anxiety (TEA) and *state evaluation anxiety* (SEA). TEA is stable and influenced by dispositional characteristics, whereas SEA is “a brief and situationally bounded experience” (Sotardi, 2018, p.350). Situational factors that influence SEA include assessment setting and assessment type. Sotardi (2018) describes how these factors can “trigger different demands and concerns about success and failure” (p. 349). Even though EA is a highly researched topic in psychological education, there is little insight into how different assessment types might elicit different levels of SEA (Sotardi et al., 2018).

**Assessment Setting.** Jones et al. (2021) conducted a study in which they interviewed students who described how the setting and timing of traditional assessments are particularly

anxiety-provoking compared to alternative assessment methods. Specifically, students experienced significant stress due to the closed-book nature of traditional exams and their strict time limits. Additionally, students often view final exams as largely dependent on luck, especially when they occur on a single day (Struyven et al., 2005), potentially increasing concerns about success and failure. However, neither study measured SEA specifically.

**Assessment Type.** Zeidner (1987) and Tozoglu et al. (2004) found that students rated MC exams less anxiety-evoking than OQ exams. As students explained, MC exams present possible answer options, whereas open-question formats expect students to organize and express their ideas, which can elicit anxiety. Though, again, neither study measured SEA specifically. Yet, Sotardi (2020) refers to a study by Kuhlemeier et al. (2002) that found variations in SEA between written and oral examinations, thereby affirming an association between assessment method and SEA.

### **Current Study**

Based on previous findings, students seem to experience less anxiety during MC exams than during OQ exams (Tozoglu et al., 2004; Zeidner, 1987); however, regarding the assessment setting, studies found that students find traditional assessment methods more anxiety-evoking than alternative methods (Jones et al., 2021). Overall, research concerning how different assessment types might elicit different levels of SEA is scarce (Sotardi et al., 2018). Therefore, this thesis aims to give insight into how situational differences might evoke different levels of SEA. Compared to the aforementioned studies, this study takes a broader approach by distinguishing between two forms of traditional assessment methods as Zeidner (1987) and Tozoglu et al. (2004) did, and including one type of PT as proposed by Sotardi et al. (2020), namely WAs. Besides, this thesis explores what specific aspects students find anxiety-evoking

for each examination method, in order to enhance the understanding regarding SEA and why it might occur.

Since only one of the studies mentioned measured SEA, this part of the thesis was more explorative. Based on the available information (Jones et al., 2021; Struyven et. al., 2005; Tozoglu et al., 2004; Zeidner, 1987) we made the following predictions:

**Hypothesis 2.** MC exams elicit lower levels of SEA compared to OQ exams.

**Hypothesis 3.** MC exams and OQ exams elicit higher levels of SEA compared to WAs.

## Method

### Sample

The present study was conducted with students from the Faculty of Behavioral and Social Sciences at the University of Groningen. The original sample consisted of 143 students, but 12 students did not complete the survey. Throughout the survey, five attention checks were incorporated. Three participants failed two or more attention checks. If someone failed to complete the survey or the attention checks, that participant was removed from the final data set. This resulted in a sample size of 128 students, which was used for the data analysis. There were 37.5% psychology (EN), 61.7% psychology (NL), and 0.8% sociology students. For practical reasons, we limited our sample to students from this faculty.

Of the sample, 72.7% were female, 23.4% were male, 3.1% were non-binary / third gender, and 0.8% preferred not to say. Moreover, 35.2 % of the students were in their third year of studying or higher, while 64.8% were first-year students. A higher number of first-year students was expected since the sampling was mostly done through Sona Systems (<https://www.sona-systems.com/>).

***Incentive***

As an incentive to participate in the study, first-year psychology students received 0.6 course credits through Sona Systems. These credits are used to pass the first-year course ‘A Practical Introduction to Research Methods’. Students in higher years did not receive an incentive for their participation.

**Procedure**

Participants were recruited through convenience sampling. The survey was accessible through Sona Systems. Furthermore, a link to the study was shared in several group chats on WhatsApp, to obtain participants who were further along in their studies. Researchers were not physically present when participants filled out the survey and participants were asked to complete the survey independently. The survey was accessible from April 16th, 2024 to April 24th, 2024.

Before filling in the questionnaire, participants were informed about the content and aim of the research, their choice to participate or refrain from participating, the incentive for completing the questionnaire, and the privacy in handling the data. The researchers’ contact information was provided, in case questions about the study arose. Subsequently, participants were required to fill in the informed consent form about participating in the study and the processing of their data.

The questionnaire started with gathering demographic information from participants, followed by questions measuring several constructs. Due to the collaborative nature of the study, some of these constructs are not relevant to the current research and will only be mentioned briefly. For further information on these sections, please see the theses written by the collaborators mentioned in the headline. After the demographics, students were presented with

questions assessing their personality types and their levels of trait test anxiety. Participants were then asked to indicate their preferences for different exam formats: OQ exams, MC exams, and PTs (both individual and group). Subsequently, prior experience and learning strategies for the different formats were assessed. Next, respondents answered questions regarding their levels of state evaluation anxiety for each examination method. The order in which these sections were shown was randomized for each participant. After completing the questionnaire, participants were directed to the Sona Systems website to receive credits, if applicable.

### ***Ethics***

Before recruiting participants, we obtained ethics approval from the Ethical Committee (EC-BSS). Based on a checklist developed by the EC-BSS at the University of Groningen, the study was exempt from full ethical review.

### **Materials**

First, participants were required to provide demographic information, namely gender, year of study, and subject of study. To assess their preferences for different examination methods, an Examination Preference Inventory (EPI) was developed, which was presented separately for each type of examination (see Appendix A). Additionally, to measure participants' levels of SEA for different examination formats, the Multimodal State Evaluation Anxiety Scale (MSEA-12) was utilized (Sotardi, 2018), along with three open-ended questions, designed independently (see Appendix A). The dependent variables are general preference and SEA and the independent variable is examination type in each case.

### ***Overall Preference***

The EPI comprises four scales, each consisting of two to four items, where participants indicated their level of agreement with displayed statements on a five-point Likert scale (1 =

*strongly disagree* to 5 = *strongly agree*). The scales were selected for their relevance, as highlighted by the studies referenced in the introduction. Three scales were based on an existing inventory by Lindner (2019): potential to show performance, objectivity, and valence. The scale measuring potential to show performance was directly adopted from Lindner's research, where it consisted of four items. An example item is "OQ exams/ MC exams/ PTs allow me to express my knowledge precisely". Perceived objectivity was assessed with two items, one adopted directly from Lindner et al. (2018) and another added to enhance the scale's reliability. Three items were included to measure participants' liking (valence) of the different exam formats. One item's phrasing was adjusted to prevent misinterpretations, and an additional item was added to the list. An example item is "OQ/ MC exams/ PTs should be the main method of examination". The fourth scale measured difficulty and included two items adapted from Zeidner (1987), one item was added to increase reliability.

The means of the different subscales were combined to form the general preference score. Reliability was estimated using Cronbach's alpha and proved sufficient ( $< .70$ ) for all scales except one (Bland & Altman, 1997). Moreover, the reliability of all scales combined as a measure of preference was also sufficient (see Table 1).

**Table 1***Cronbach's Alpha Scores for the EPI Scale and Subscales*

Subscales	Open-Question Exams	Multiple-Choice Exams	Performance Tasks
	$\alpha$	$\alpha$	$\alpha$
Difficulty	.78	.74	.81
Potential to Show Performance	.80	.71	.71
Objectivity	.91	.81	.91
Valence	.76	.74	.69
Total	.72	.75	.71

***State Evaluation Anxiety***

The MSEA-12 was adapted from Sotardi (2018) to measure SEA across various examination formats. The scale consisted of three subscales: cognitive worry (CW), emotionality (EM), and distraction (DT), where participants indicated their level of agreement with the statements presented using a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). To avoid lengthiness, some items were excluded, resulting in a total of nine items rather than 12 (see Appendix A). CW was measured by three items such as “I worried about my test performance/ the quality of my written performance”. Similarly, EM comprises three items, for instance, “My heart was pounding”. Lastly, DT was assessed with three items, for example, “I easily lost my train of thought”.

Reliability was measured using Cronbach's alpha, demonstrating sufficient results ( $< .70$ ) for all scales (Bland & Altman, 1997). Additionally, the overall reliability of all scales combined as a measure of SEA was satisfactory (see Table 2).

**Table 2**

*Cronbach's Alpha Scores for Reliability*

Subscales	Open-Question Exams	Multiple-Choice Exams	Written Assignments
	$\alpha$	$\alpha$	$\alpha$
Cognitive Worry	.75	.83	.75
Emotionality	.90	.90	.85
Distraction	.88	.87	.85
Total	.89	.90	.89

Moreover, for each examination method, one open-ended question was asked: "What exactly do you find anxiety evoking about open-question exams/ multiple-choice exams/ written assignments?". Participants' responses were limited to 200 characters for each open question.

## Results

### General Preference

As was hypothesized, a higher general preference was found for MC exams ( $M = 3.45$ ,  $SD = .54$ ) in comparison to OQ exams ( $M = 3.01$ ,  $SD = .46$ ), and PTs ( $M = 3.00$ ,  $SD = .48$ ). Supporting the first hypothesis, a paired sample  $t$ -test between MC and OQ exams showed that preference for MC exams was significantly higher than for OQ exams,  $t(127) = 6.21$ ,  $p < .001$ ,  $d$



= 0.55, 99.5% CI [0.23, 0.64].<sup>1,2</sup> Also, students preferred MC exams over PTs,  $t(127) = 6.16$ ,  $p < .001$ ,  $d = 0.54$ , [0.24, 0.66]. The effect sizes showed moderate effects.

### Subscales of General Preference

To further explore students' preferences, we analyzed the subscales of the EPI (see Footnotes 1 and 2). The descriptive statistics of the four subscales for each examination format can be found in Table 3.

**Table 3**

*Means and Standard Deviations of the Different Scales of the EPI*

Measure	Multiple-Choice Exams		Open-Question Exams		Performance Tasks	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Objectivity	4.49	0.73	3.09	0.97	2.67	0.99
Difficulty	2.95	0.84	4.08	0.61	3.27	0.29
Potential to Show Performance	3.14	0.83	3.98	0.75	3.75	0.72
Valence	3.55	0.87	2.75	0.86	3.00	0.80

The objectivity scores for MC exams were significantly higher compared to PTs,  $t(127) = 16.56$ ,  $p < .001$ ,  $d = 1.46$ , 99.5% CI [1.50, 2.13], and compared to OQ exams.  $t(127) = 13.87$ ,  $p < .001$ ,  $d = 1.23$ , [1.10, 1.68]. Similarly, the differences in difficulty between MC exams and PTs

<sup>1</sup> The assumptions of independence between subjects, same-subject paired measurements, and normal distribution of differences between pairwise comparisons were met. Some outliers were found. In such a case, a Kruskal-Wallis test would be an alternative to the current research. However, this statistical technique is not part of the curriculum. Therefore, paired-sample  $t$ -tests were conducted. Results must be interpreted with caution.

<sup>2</sup> Due to the increased risk of a type I error when conducting multiple statistical tests, we corrected the original alpha value of 0.05 according to the Bonferroni correction. As such, the critical  $p$ -value was corrected to 0.005 when taking into account the  $t$ -tests for the subscales later in this section.

and MC exams and OQ exams were significant; PTs and OQ exams were perceived as more difficult,  $t(127) = 4.20, p < .001, d = 0.37, [0.10, 0.53]$  and  $t(127) = 13.56, p < .001, d = 1.2, [0.89, 1.36]$ , respectively. Next, the differences in potential to show performance between MC exams and OQ exams and MC exams and PTs were tested. OQ exams and PTs were rated significantly higher on that subscale compared to MC exams,  $t(127) = 7.37, p < .001, d = 0.65, [0.51, 1.16]$  and  $t(127) = 5.43, p < .001, d = 0.48, [0.29, 0.92]$ , respectively. Lastly, students liked MC exams significantly more than OQ exams,  $t(127) = 6.18, p < .001, d = 0.55, [0.43, 1.17]$ , and PTs,  $t(127) = 4.45, p < .001, d = 0.39, [0.20, 0.91]$ . The effect sizes showed medium to large effects.

### **State Evaluation Anxiety**

Regarding students' levels of SEA, MC exams were rated the lowest ( $M = 3.35, SD = .91$ ), followed by WAs ( $M = 3.44, SD = .88$ ), and OQ exams ( $M = 3.57, SD = .84$ ). Given that MC exams were rated lower compared to WAs, the prediction that MC exams elicit higher levels of SEA compared to WAs was not tested (part of hypothesis three).

The results showed that SEA was significantly higher for OQ exams compared to MC exams,  $t(127) = 4.26, p < .001, d = 0.57, 97.5\% \text{ CI } [0.10, 0.33]$ . There were no significant differences between OQ exams and WAs,  $t(127) = 1.76, p = .041, d = 0.81, [-0.04, 0.29]$  (see Footnote 1).<sup>3</sup>

Thus, the results only supported the second hypothesis, namely that MC exams elicit lower levels of SEA in comparison to OQ exams. The prediction that OQ exams elicit higher

---

<sup>3</sup> Due to the increased risk of a type I error when conducting multiple statistical tests, we corrected the original alpha value of 0.05 according to the Bonferroni correction. Consequently, the critical  $p$ -value was corrected to 0.025.

levels of SEA compared to WAs was not confirmed (part of hypothesis three). The effect sizes of these *t*-tests showed medium to large effects.

### *Qualitative Analysis of the Open Questions*

The three open questions regarding what students find anxiety-evoking about OQ exams, MC exams, and written assignments were classified into several categories. We read the statements and classified them into different units (Braun & Clark, 2006). Different themes were suggested based on the inspection of the different units (see Appendix B for all statements and their categorization).

Regarding OQ exams, the main themes were “pressure of precision and fear of making mistakes” (25.0%), followed by “ambiguity of expectations” (16.4%) and “memory-related stress” (16.4%). Students in the first category were most concerned about the precision required in their responses, for example, by using specific terminology, and the fear of losing points for minor errors in their answers. One student explained that “you often need to have a completely correct answer, with all the correct terms which can be difficult, even after understanding the concepts”. The second category revolved around uncertainty regarding (teacher) expectations; an example quote is: “The fact that you do not know what precise terms they want to hear in the answer”. The third category showed that students are concerned about the need to actively recall specific terms and knowledge. One participant worried “that [their] mind will go completely blank and [they] won’t be able to write anything”. See Table 4 to view the remaining categories.

**Table 4**

*Classification of Responses to the Open Question “What exactly do you find anxiety-evoking about Open-Question Exams?”*

Category	Example Quotes	Percentage of Responses
Comprehension, Expression, and Writing Skills	<p>“I often understand the question, but I am sometimes afraid that I cannot express my understanding properly.”</p> <p>“I worried about my spelling and if the sentences were easy to follow.”</p>	15.0%
Evaluation Ambiguity and Subjectivity	<p>“That there are many ways to answer the question which is judged based on interpretation.”</p> <p>“Being judged on your personal work and formulation, instead of an already formulated answer.”</p>	7.9%
Overwhelming Nature of the Task	<p>“I find it really hard to start and write things down.”</p> <p>“With multiple-choice questions, you have the answer right before you, with open questions it feels like there’s an endless amount of options to answer the question, which makes me doubt how to answer.”</p>	15.0%

*Note.* The category “unclassified” (3.6%) was excluded from the table.

Regarding WAs, one of the main themes was “freedom and creativity” (17.4%), which describes students’ concerns about generating ideas and concepts. While this freedom allows for creativity, it can also be overwhelming. One student describes how “there is a lot of freedom. You have to think of a subject and all the text and information by yourself, without a specific example of the format”. The category “writing skills” (17.4%) reflects students’ concerns about their ability to express their thoughts clearly, as they often struggled with wording and organizing their ideas; for example, one participant worried “that [they] won’t be able to express [their] thoughts correctly, as [they] often struggle with wording and organizing what [they] want to say”. Lastly, students were concerned about potential bias from their examiners (“evaluation and grading”, 17.4%), fearing that their chosen topic might not be liked or that their work could be unfairly graded; for example: “That the person grading my essay is biased or doesn’t like what I wrote and will not give me a pass”. Table 5 shows the remaining categories.

**Table 5**

*Classification of Responses to the Open Question “What exactly do you find anxiety-evoking about Written Assignments?”*

Category	Example Quotes	Percentage of Responses
Fear of Making Mistakes	<p>“I worry I messed up the formatting.”</p> <p>“The formulation of good sentences and mostly the use of sources. I find reading, using, and correctly referring to an academic source to be very anxiety evoking.”</p>	13.8%
Personal Performance and Effort	<p>“It’s mirroring your talents and weaknesses. It will show how well you are in writing (in general), not just how well you know the topic.”</p> <p>“The thought that my written assignment is not good enough gives me anxiety.”</p>	13.0%
Time Pressure and Deadlines	<p>“Written assignments mostly take more time than I calculate.”</p> <p>“The deadline.”</p>	12.3%

*Note.* The category “unclassified” (2.9%) was excluded from the table.

For MC exams, the main theme was “trick questions and similarity of answer options” (44.3%). Students were primarily concerned about the presence of ambiguous or “trick” questions, where more than one answer seemed correct. This ambiguity caused stress as they

struggled to differentiate between similar options, one student describes how “sometimes two answers are so similar that you think they can both be correct”. The second theme that emerged involved the format of MC exams (17.1%). Students were primarily worried about the binary nature of MC exams, where answers are either right or wrong. Furthermore, they felt restricted by the format as they were unable to provide all the information they knew. One participant was worried as “it is a definite choice, you can’t write down everything you know and at least provide most of the information”. Table 6 shows the remainder categories for this format.

Some students indicated that they did not find anything anxiety-evoking about either exam format. For MC exams, this was the case in 10.0% of the responses, followed by WAs (5.8%) and OQ exams (0.7%).

**Table 6**

*Classification of Responses to the Open Question “What exactly do you find anxiety-evoking about Multiple-Choice Exams?”*

Category	Example Quotes	Percentage of Responses
Guess-Rate and Grading	<p>“The high chance of gambling and therefore the minimum amount you need to get right.”</p> <p>“I think mainly that there is a guess factor applied to the grades, so you have to have a lot of questions correct to pass the course.”</p>	5.7%
Comprehension and Understanding	<p>“I struggle a lot with my reading comprehension, so even when I understand a subject, all the answer options confuse me and I often read them wrong.”</p> <p>“I’m afraid I won’t select the correct answer because of misunderstanding the phrasing of the question, which I am likely to do under stress.”</p>	2.9%

*Note.* The categories “unclassified” (3.6%) and “worries independent of exam type” (16.4%) were excluded from the table. The latter since it was not specific to MC exams.



## Discussion

The purpose of this thesis was to determine students' preferences regarding different types of examinations. While previous studies have primarily focused on comparing MC and OQ exams, this thesis adopted a more comprehensive approach by including PTs as an additional assessment method. Furthermore, this thesis sought to enhance our understanding of SEA in relation to different examination methods.

### Students' Preferences for Multiple-Choice Exams

The results support our first hypothesis, showing that students tend to prefer MC exams over OQ exams and PTs. Concerning OQ exams, our findings are consistent with those of prior research (Birenbaum & Feldman, 1998; Holzinger et al., 2020; Tozoglu et al., 2004; van de Watering et al., 2008; Zeidner, 1987). As previously stated, factors such as perceived objectivity, reduced difficulty, and lower anxiety levels contribute to this preference (Holzinger et al., 2020; Tozoglu et al., 2004; van de Watering et al., 2008; Zeidner, 1987). The results of our subscale analysis also support this claim, showing that students rated MC exams as more objective and less difficult than OQ exams. With regard to PTs, our findings make a significant contribution to the existing literature. Like OQ exams, PTs were rated as less objective than MC exams, which aligns with criticisms that both formats suffer from subjective and inconsistent scoring (Braun, 2019; Hift, 2014). Additionally, students perceived PTs as more challenging than MC exams, which may be attributed to their unfamiliarity with such tasks (Jones et al., 2021; Lynam & Cachia, 2018).

Importantly, students perceived MC exams to be less indicative of their performance compared to both other formats, which aligns with prior research (Jones et al., 2021; Struyven et al., 2005; Tozoglu et al., 2004; Zeidner, 1987). Yet, despite this perception, MC exams were

rated as more likable than OQ exams and PTs, possibly due to their associated advantages. In conclusion, these results indicate that while students recognize the strengths of OQ exams and PTs in demonstrating their abilities, they tend to favor MC exams due to perceived objectivity, reduced difficulty, and general likeability. This preference remains robust even when considering the potential benefits of other assessment formats.

### **State Evaluation Anxiety and Why It Might Occur**

Consistent with our second hypothesis, MC exams elicited lower SEA levels than OQ exams. However, the third hypothesis was not supported, as MC exams unexpectedly showed lower SEA levels than WAs, contrary to our prediction. Moreover, the prediction that WAs would elicit lower SEA levels than OQ exams was not significant.

The finding that MC exams elicited lower levels of SEA compared to OQ exams aligns with previous research by Zeidner (1987) and Tozoglu et al. (2004), in which students rated MC exams as less anxiety-evoking than OQ exams. However, it should be noted that neither study specifically measured SEA. The finding that MC exams elicited lower levels of SEA compared to WAs is inconsistent with previous research suggesting that traditional exam settings are perceived as more anxiety-inducing than alternative methods (Jones et al., 2021). Sotardi (2018) offers a plausible explanation for this discrepancy, suggesting that depending on the assessment format, different situational factors can provoke concerns regarding success and failure, thereby promoting SEA. Therefore, although the assessment setting may still have contributed to SEA, other factors may have been more influential, resulting in findings that contradict our hypothesis.

This idea is further supported by the findings of our qualitative analysis. Regarding Was, different themes emerged that led to concerns, potentially leading to higher levels of SEA compared to MC exams. For instance, students struggled with the freedom and creativity

required for WAs, finding it overwhelming to make decisions independently without assurance of being on the right track. This finding is interesting as it contrasts with the results of Lynam and Cachia (2018), where students valued assignments for allowing autonomy and control over their learning, which they felt traditional assignments lacked. However, students also emphasized the importance of feedback and teacher support, as well as clear guidelines, to reduce uncertainty and worries (Lynam & Cachia, 2018). It is possible that both aspects were either lacking or poorly implemented in our student sample. Moreover, while studies have found that students tend to value PTs for showcasing their abilities (Jones et al., 2021; Lynam & Cachia, 2018), some students in our sample found this aspect anxiety-inducing, fearing that poor grades would reflect negatively on their skills. Lastly, students reported anxiety about approaching deadlines, with some admitting to procrastinating until the last minute. Sotardi (2020) suggests that having excessive time for assignments might encourage ineffective writing strategies, including procrastination.

Moreover, differences in SEA between OQ exams and WAs were non-significant. However, despite the lack of significant differences in SEA among the exam formats, the unique situational factors inherent to each still contribute to SEA (Kuhlemeier et al., 2002; Sotardi, 2020) and warrant discussion. Concerning OQ exams, students were primarily concerned about losing points due to spelling errors and correctly using specific terminology. The latter was closely linked to the category of “memory-related stress”, as students worried about forgetting important terms or blanking during the exam. In contrast, MC exams rely on cued recall, which can reduce anxiety by providing answer options (Zeidner, 1987). Essentially, these concerns indicate that students are primarily worried about generating responses during OQ exams, a

concern that appears to be widespread among students as shown in our results and other studies (Jones et al., 2021; Tozoglu et al., 2004; Zeidner, 1987).

Lastly, our qualitative analysis revealed some anxiety-evoking aspects of MC exams. For example, students were worried about similar answer options, trick questions, and the binary nature of MC exams, where answers were either right or wrong. These findings align with those of Zeidner (1987) and Tozoglu et al. (2004), indicating that they are common worries among students regarding MC exams. Yet, these concerns appear less significant than those associated with OQ exams and possibly WAs, since MC exams elicited the lowest levels of SEA.

### **Limitations**

Several limitations regarding the results of this study should be noted. Firstly, our findings cannot be generalized to subjects outside of psychology and sociology, as assessment methods may vary across disciplines (O'Neill & Padden, 2022). Additionally, this thesis was restricted to students from the University of Groningen, so our findings may not apply to other universities with different assessment strategies. Moreover, since most of our participants were first-year bachelor students, it is important to be cautious when applying our findings to students in higher academic years or master's programs, as their perceptions might differ.

Certain limitations of this study could be addressed in future research. For example, one shortcoming is that we did not limit PTs to a single method but included multiple types, such as group work and presentations. This variability could reduce the reliability of our findings, as students might have different attitudes towards each type of PT. Regarding SEA, one limitation is the reliance on students' reflections on their feelings and emotions during final exams. This reliance on memory may introduce inaccuracies, as students might not precisely recall their emotions experienced at the time of the exams. Future research could address this issue by

administering questionnaires immediately after exams to capture students' feelings more accurately.

### **Implications and Directions for Future Research**

Despite these limitations, our results suggest several practical implications and directions for future research. Firstly, we recommend that educational institutions continue to use MC exams as final examinations. In cases where they are less used, they could be integrated more often, considering the preference for them demonstrated by our sample. Importantly, Holzinger (2020) notes that students are likely to be more motivated and perform better when assessed through their preferred methods. However, it is important not to overgeneralize our results and assume that the preference for MC exams applies universally to all students. As noted by Struyven et al. (2005), students' assessment preferences are personal and can vary based on factors like trait test anxiety, self-regulation skills, and personality traits. Therefore, for future research, it would be valuable to extend the current findings by examining how individual differences play a role in students' exam preferences. Moreover, future studies could broaden our conceptualization of general preference to include more dimensions. For example, Zeidner (1987) and Tozoglu et al. (2004) have considered factors such as "expected success", "familiarity", and "perceived workload". Research that examines students' preferences across a wider range of variables could provide a deeper understanding of why students might prefer one exam over another.

Our finding that MC exams induce lower SEA levels compared to OQ exams provides further justification for using MC exams more frequently to create a less stressful testing environment. However, in educational settings where educators opt for diverse assessment methods, it is crucial to implement them in ways that reduce SEA, given its association with

several negative outcomes (von der Embse et al., 2018). Our qualitative analysis provides important insights on how to potentially alleviate some anxiety regarding different assessment formats.

Firstly, our findings highlight a necessity for improving the design and implementation of WAs. For instance, offering feedback and support by teaching personnel, as well as providing clear guidelines, could alleviate anxiety stemming from the freedom and creativity involved in these tasks (Lynam & Cachia, 2018). Additionally, to mitigate procrastination tendencies, educators might consider implementing incremental deadlines to encourage better time management and reduce last-minute stress. Regarding OQ exams, regular practice with open-ended questions in the form of mock exams might help students become more comfortable with this format. Moreover, to address the fear of losing points due to spelling mistakes and writing errors, educators could implement policies that minimize the impact of minor errors on the overall grade, focusing primarily on content understanding. Finally, although MC exams are perceived to be less anxiety-inducing, some students expressed concern about the possibility of trick questions. Brady (2005) provides some guidance for the design of MC questions. It is recommended that question designers not only avoid including trick questions, but also use correct grammar, refrain from including negative stems, and maintain clarity and simplicity in their questions to ensure that students can effectively engage with them.

In terms of future research, it would be useful to extend the current findings by determining the relevance of different situational aspects in promoting SEA. Furthermore, there is a necessity for research to identify strategies that effectively reduce SEA across various exam formats, beyond those suggested above. Lastly, despite these findings, it is important to acknowledge that universities are challenging environments where some stress is part of the

learning experience (Jones et al., 2021). However, it is crucial to be aware of assessment methods that endanger student well-being by creating unnecessary stress and anxiety without any educational benefits.

## References

- Birenbaum, M., & Feldman, R. A. (1998). Relationships between learning patterns and attitudes towards two assessment formats. *Educational Research*, 40(1), 90-98.  
<https://doi.org/10.1080/0013188980400109>
- Bland, J. M., & Altman, D. G. (1997). Statistics notes: Cronbach's alpha. *BMJ*, 314(7080), 572.  
<https://doi.org/10.1136/bmj.314.7080.572>
- Brady, A. M., (2005). Assessment of learning with multiple-choice questions. *Nurse Education in Practice*, 5(4), 238-242. <https://doi.org/10.1016/j.nepr.2004.12.005>
- Braun, H. (2019). Performance assessment and standardization in higher education: A problematic conjunction? *British Journal of Educational Psychology*, 89(3), 429–440.  
<https://doi-org.proxy-ub.rug.nl/10.1111/bjep.12274>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Center on Standards and Assessments Implementation (CSAI), & WestEd. (2018). Valid and Reliable Assessments. CSAI Update. In *Center on Standards and Assessments Implementation*. <https://eric-ed-gov.proxy-ub.rug.nl/?id=ED588476>
- Hift, R. J. (2014). Should essays and other “open-ended”-type questions retain a place in written summative assessment in clinical medicine? *BMC Medical Education*, 14, 1-18.  
<https://doi.org/10.1186/s12909-014-0249-2>
- Holzinger, A., Lettner, S., Steiner-Hofbauer, V., & Capan Melser, M. (2020). How to assess? Perceptions and preferences of undergraduate medical students concerning traditional assessment methods. *BMC Medical Education*, 20, 1-7. <https://doi.org/10.1186/s12909-020-02239-6>



Jones, E., Priestley, M., Brewster, L., Wilbraham, S. J., Hughes, G., & Spanner, L. (2021).

Student wellbeing and assessment in higher education: The balancing act. *Assessment & Evaluation in Higher Education*, 46(3), 438–450. <https://doi-org.proxy-ub.rug.nl/10.1080/02602938.2020.1782344>

Kuhlemeier, H., van den Bergh, H., & Rijlaarsdam, G. (2002). The dimensionality of speaking and writing: a multilevel factor analysis of situational, task and school effects. *The British journal of educational psychology*, 72(Pt 4), 467–482.

<https://doi.org/10.1348/00070990260377479>

Lindner, M. A., Mayntz, S. M., & Schult, J. (2018). Studentische Bewertung und Präferenz von Hochschulprüfungen mit Aufgaben im offenen und geschlossenen Antwortformat =

Students' appraisal of open and closed response formats in university exams. *Zeitschrift Für Pädagogische Psychologie / German Journal of Educational Psychology*, 32(4), 239–248. <https://doi-org.proxy-ub.rug.nl/10.1024/1010-0652/a000229>

Lynam, S., & Cachia, M. (2018). Students' perceptions of the role of assessments in higher education. *Assessment & Evaluation in Higher Education*, 43(2), 223–234. <https://doi-org.proxy-ub.rug.nl/10.1080/02602938.2017.1329928>

Medland, E. (2016). Assessment in higher education: Drivers, barriers, and directions for change in the UK. *Assessment & Evaluation in Higher Education*, 41(1), 81–96. <https://doi-org.proxy-ub.rug.nl/10.1080/02602938.2014.982072>

O'Neill, G., & Padden, L. (2022). Diversifying assessment methods: Barriers, benefits, and enablers. *Innovations in Education and Teaching International*, 59(4), 398–409.

<https://doi-org.proxy-ub.rug.nl/10.1080/14703297.2021.1880462>

- Saher, A. -S., Ali, A. M. J., Amani, D., & Najwan, F. (2022). Traditional versus Authentic Assessments in Higher Education. *Pegegog Journal of Education and Instruction*, 12(1), 283-291. <https://doi.org/10.47750/pegegog.12.01.29>
- Sotardi, V. A. (2018). Trait and state anxiety across academic evaluative contexts: development and validation of the MTEA-12 and MSEA-12 scales. *Anxiety, Stress & Coping: An International Journal*, 31(3), 348–363. <https://doi-org.proxy-ub.rug.nl/10.1080/10615806.2017.1421948>
- Sotardi, V. A., Bosch, J., & Brogt, E. (2020). Multidimensional influences of anxiety and assessment type on task performance. *Social Psychology of Education: An International Journal*, 23(2), 499–522. <https://doi-org.proxy-ub.rug.nl/10.1007/s11218-019-09508-3>
- Struyven, K., Dochy, F., & Janssens, S. (2005). Students' perceptions about evaluation and assessment in higher education: A review. *Assessment & Evaluation in Higher Education*, 30(4), 325–341. <https://doi-org.proxy-ub.rug.nl/10.1080/02602930500099102>
- Tozoglu, D., Tozoglu, M. D., Gurses, A., & Dogar, C. (2004). The students' perceptions: Essay versus Multiple-choice type exams. *Journal of Baltic Science Education*, 2(6), 52-59. <http://oaji.net/articles/2016/987-1482420585.pdf>
- van de Watering, G., Gijbels, D., Dochy, F., & van der Rijt, J. (2008). Students' Assessment Preferences, Perceptions of Assessment and Their Relationships to Study Results. *Higher Education*, 56(6), 645–658. <http://www.jstor.org/stable/40269095>
- von der Embse, N., Jester, D., Roy, D., & Post, J. (2018). Test anxiety effects, predictors, and correlates: A 30-year meta-analytic review. *Journal of Affective Disorders*, 227, 483–493. <https://doi-org.proxy-ub.rug.nl/10.1016/j.jad.2017.11.048>

Zeidner, M. (1987). Essay versus multiple-choice type classroom exams: The student's perspective. *The Journal of Educational Research*, 80(6), 352–358. <https://doi-org.proxy-ub.rug.nl/10.1080/00220671.1987.10885782>

## **Appendix A**

### **Examination Preference Inventory and Multimodal State Evaluation Anxiety Scale**

This appendix includes the four scales and their corresponding items of the Examination Preference Inventory and the three scales and their corresponding items of the Multimodal State Evaluation Anxiety Scale. Participants rated each statement on a five-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*).

#### **Examination Preference Inventory**

##### ***Potential to Show Performance***

- 1) Open-question exams/ MC exams/ Performance tasks give me the opportunity to show that I have understood the subject matter very well.
- 2) Open-question exams/ MC exams/ Performance tasks give me the opportunity to show that I know more than other students.
- 3) Open-question exams/ MC exams/ Performance tasks allow me to express my knowledge precisely.
- 4) Open-question exams/ MC exams/ Performance tasks are an appropriate examination format for important exams.

##### ***Objectivity***

- 5) Open-question exams/ MC exams/ Performance tasks are evaluated objectively.
- 6) Open-question exams/ MC exams/ Performance tasks are graded without bias.

##### ***Valence***

- 7) Open-question exams/ MC exams/ Performance tasks should be the main method of examination.
- 8) Open-question exams/ MC exams/ Performance tasks are interesting.

- 9) Open-question exams/ MC exams/ Performance tasks are liked by me.

### ***Difficulty***

- 10) Open-question exams/ MC exams/ Performance tasks are complex.
- 11) Open-question exams/ MC exams/ Performance tasks are easy.
- 12) Open-question exams/ MC exams/ Performance tasks are challenging.

## **Multimodal State Evaluation Anxiety Scale**

### ***Cognitive Worry***

- 1) I worried about my test performance/the quality of my written performance.
- 2) I was concerned about my marks.
- 3) I thought about what would happen if I did not do well.

### ***Emotionality***

- 4) My heart was pounding.
- 5) I felt anxious.
- 6) I felt overwhelmed.

### ***Distraction***

- 7) I easily lost my train of thought.
- 8) I forgot things because my mind often went blank.
- 9) My concentration was interrupted by interfering thoughts.

## Appendix B

### Detailed Qualitative Analysis

This appendix includes a full list of all responses and their classification for each examination method.

#### Open-Question Exams: Responses and Their Classification

##### *Ambiguity of Expectations*

- The fact that this really is a multiple-choice question in disguise, except without the choice: They are looking for one specific answer even if not asked. If you don't mention something but the rest is correct, it's wrong.
- It is also hard to predict if you answered right or not.
- It feels like it's never going to be correct.
- The fact that you do not know what precise terms they want to hear in the answer.
- I feel like it's hard to estimate the answer the teachers are looking for. Sometimes there are several directions to take your answer which makes it hard to choose one.
- It is sometimes unclear what is expected from you, or how it will be graded.
- You have to include information that isn't explicitly asked for (very easy to forget one or two things, which can have your points). Questions may need interpretation.
- The stress of having no idea what the answer should be.
- Needing to find the answer the professor is looking for.
- I don't know what precisely the teacher wants to hear, it stressed me out.
- It is also harder to assess whether I did well or not.
- I worry about writing too much or too little or leaving out important pieces of information.

- Often I am just not 100% sure what exactly of the content they want to hear even though I know the things about the topic.
- The questions are not specific enough to know in which direction you should answer.
- I worry about whether I answer the questions with what the teachers would like to hear.
- I often don't know what the teacher wants to hear. Often the teacher wanted me to write something I did not realize was asked in the question. It's all too subjective.
- I worry about the quality of my answer and whether it is sufficient.
- Doubting myself, not knowing if I'll give the right answer.
- The pressure of giving the exact answer that they want to hear, because sometimes you know the answer but you write it wrong.
- That you do not know whether you're on the right track.
- You don't know if you interpreted the question the same way the teacher did.
- I find it hard to know exactly what they ask of me and that I have no indication of whether I answered correctly or not.
- Also, when studying I stress about what they're going to ask and in how much detail I should know it.

### ***Pressure of Precision and Fear of Making Mistakes***

- The possibility of essay questions focusing on topics that you know less of, and not asking about the topics that you know well.
- You usually need to remember specific terms and words; if you write down a single wrong word, it immediately affects the amount of points you get for a question.
- They may be the one thing I didn't study.
- If you don't prepare precisely well, you don't have a chance to even score some points.

- In the English course, some forms of open questions ask for precise terms. I tend to be forgetful.
- Some open questions expect us to use specific terminology in responses even though we show a good understanding of the concept which can be complex.
- If you don't know the material well, it's way more difficult to deduce the right answer from the questions than with a multiple-choice exam.
- Usually, if half of your answer is correct or some part but not the whole of the question, marks will not be given.
- I often forget how to spell certain terms, which makes me worry I'll lose points because of that.
- You have to give the exact answer the examiner wants to hear.
- I have to know the details as well, I find it difficult to remember so much information. So I'm usually anxious about not knowing the answers well enough.
- The fact that wrong words or wrong statements could also lead to minus points. And having to use exact words and that if you know something but can't come up with the wanted word, could lead to wrong.
- You often need to have a completely correct answer, with all the correct terms which can be difficult, even after understanding the concepts.
- Providing all information needed.
- I worry about leaving out important pieces of information.
- The fear of missing one little thing in the answer of the question.
- The questions are too specific, meaning that they ask for a certain word that fits well.



- The fact that with open questions you need to know the requested material much better and in more detail.
- If it pertains to something I do not know very well and makes up a substantial part of the mark, I automatically lose many points.
- Their precision and complexity.
- Easier to get it wrong.
- Because I know that the grade depends on my answer and that the grade will be worse if I don't know enough or anything about the problem in question.
- Very much room for errors.
- They are usually very specific and you can't guess, so it's either you know it or you don't.
- It can be a really specific question.
- Doubting myself, not knowing if I'll give the right answer.
- If you don't know the exact answer, you can't get the full points.
- Whether I have enough information.
- Questions can be very specific and that can be challenging but I don't get anxious.
- I often can't remember specific terms for things, although I do know what the questions are about. This way I still don't get points for the question.
- You have to be careful how you write your answer.
- I think about whether I included all aspects that are important for the question.
- You have to be very precise.
- You need to be very precise most of the time.
- I get anxious because I am afraid that I can not answer the questions well enough.

### *Memory-Related Stress*

- Recalling enough information to get full marks.
- When you know the answer but you do not know the word.
- You have to actively recall knowledge and specific terms you may have forgotten about.
- With multiple-choice exams you can always choose something even if your mind is going blank. With open questions that's not possible at all.
- That nothing comes up in my mind to evaluate a good answer.
- That my mind will go completely blank and I won't be able to write anything.
- Often I know what it is about, but I don't remember the details.
- When forgetting the answer.
- Recalling enough information to get full marks.
- Even though I have the knowledge somewhere inside because I know I read and practiced it, I have a blackout on the exams and can't word myself well.
- It tests free recall usually, and not recognition (as in MC), which I find harder and it makes me worry more when I cannot think of an answer right away.
- If you don't know an answer you are more likely to write a nonsense answer which will cost you points instead of e.g., with multiple choice questions to "gamble" an answer.
- Not knowing the answer.
- I worry that I will forget important info and write something wrong.
- It's sometimes difficult to remember exact information, and the result is that you won't get any points for that question.

- That I don't remember the right answer, although I know, I know it. That it did not come to my mind on the exam.
- To not be able to recall previously learned information.
- I'm always worried I'm forgetting a part of the answer.
- Getting a blackout and not remembering certain words that you need to answer essay questions.
- I'm afraid I forget what I learned or cannot find the words that are needed exactly.
- Usually, the answer is on the tip of my tongue, but I can't put my mind to it.
- I worry that I will forget something.
- Not remembering the material exactly.

### ***Comprehension, Expression, and Writing Skills***

- There can also be problems when I don't understand the question and I don't get hints about the answers.
- To not find the right words to express what I mean in particular.
- The fear of not saying what I wanted to say.
- Not understanding the question exactly.
- The way I put meaning to the words that I write down can be not as accurate as I mean it to be.
- Sometimes you know the answer, but you don't know how to describe the answer well.
- I often understand the question, but I am sometimes afraid that I cannot express my understanding properly.
- I'm scared I'm not formulating my answer in a way that is good and clear.

- Not explaining my answer well enough.
- The fear of using the wrong words.
- I worried about my spelling and if the sentences were easy to follow.
- It is too abstract for me, I like closed questions better.
- I'm afraid I might have misunderstood the question.
- I am a non-native speaker.
- I'm scared that I will make mistakes in language.
- The possibility that I have the right information but I'm not able to express it in the correct way.
- I worry about the quality of my answer and whether it is sufficient.
- Not knowing how to write a proper answer.
- Being judged on your personal world and formulation, instead of an already formulated answer.
- You have to be careful how you write your answer.
- Is my response of good quality? The grade I get.

### ***Evaluation Ambiguity and Subjectivity***

- The uncertainty of grading, there is not necessarily an exact answer.
- It is sometimes unclear what is expected from you, or how it will be graded.
- Not knowing exactly what will be graded, like what will give me points in a question.
- However open essay questions lacked clear grading guidelines.
- Well, when they combine it with multiple-choice questions, the weight of the open-ended ones is huge.

- Being judged on your personal work and formulation, instead of an already formulated answer.
- That there are many ways to answer the question which is judged based on interpretation.
- I think about whether I included all aspects that are important for the question.
- The pressure of the grade I will get, because I want a good grade.
- It is very subjective.
- Because I know that the grade depends on my answer and that the grade will be worse if I don't know enough or anything about the problem in question.

### ***Overwhelming Nature of the Task***

- I'm not used to doing it anymore and learning for those types of questions, hence why it is so hard to suddenly answer those questions.
- You need to come up with the answer yourself and can't rely on you knowing the right answer when you see it written out. It tests your knowledge harder, you need to have understood the question well to write about.
- It is stressful to have to show everything you have learned and to make sure you have answered the question correctly and included all the information in a short time frame.
- I find it really hard to start or write things down.
- You have no orientation point, if you don't know the answer/the topic - then you are lost with this kind of question.
- That you have to come up with an answer yourself, instead of also looking at other possible answers.
- There is no help from info in other questions/answers.

- Some essay questions are not specific enough, so then it is difficult to answer the questions because there is often a lot of learning material.
- The pressure of there being endless possibilities, unlike a multiple choice-question.
- That there are so many options to describe something that you are less likely to get it right.
- With multiple choice questions you have the answer right before you, with open questions it feels like there's an endless amount of options to answer the question, which makes me doubt how to answer.
- It's overwhelmingly much material.
- It is less direct than Multiple Choice, it needs to come almost completely out of you instead of being able to redirect it from the question.
- It can be hard to phrase a good answer because I may have a lot of ideas.
- The time it takes to come up with an answer.
- It's harder to come up with the answer on your own rather than scanning multiple-choice questions for the familiar answer.
- It is a lot harder than only having  $\frac{3}{4}$  options.
- You have to reproduce the material instead of just identifying it.
- You have to know the material so much better because you really have to be able to explain and connect it all.
- You don't have options, so if you don't have an idea, you can't get points.
- They can be about any concept learned during a course so there are so many possibilities of topics these questions can cover and you don't know which one it will be.

***Nothing***

- I do not think they are anxiety-evoking, they are pretty chill in my opinion.

### ***Unclassified Responses***

- The chance of you just having guessed the right answer is lower compared to a multiple-choice exam.
- They may be misinterpreted. (*unclear what is meant by 'they'*)
- There are interfering thoughts.
- It's harder to make a right guess if you don't know the answer.
- That you doubt yourself a lot.

### **Written Assignments: Responses and their Classification**

#### ***Freedom and Creativity***

- You have no example so you don't know if you are in the right direction.
- It really stresses me out also about fashioning the assignment.
- I get overwhelmed with what you have to finish as the end result
- Too much freedom.
- Doing the assignment the right way, because it is very open.
- There is a lot of freedom. You have to think of a subject and of all the text and information by yourself, without a specific example of format.
- Sometimes the examiner expects you to answer a question a certain way but does not make their preference clear and they then penalize you for failing to read their mind.
- Whether you are in the right direction.
- Usually, there is a lot of freedom, which allows for creativity but can also be overwhelming (as in not knowing where to start for example).

- The time and creativity it takes to make.
- The fluidity and creativity that is required for them, compared to mc and open questions.
- I worry because there is no one right answer and it is relatively subjective.
- Most of the time they are quite big, so it is difficult to choose a starting point.
- It is all in your own hands.
- The thought that if you can't think of anything to put on paper, you can't pass the assignment.
- Not knowing if I'm doing it right since there are many ways to write.
- That is very personal.
- You can easily go completely the wrong way with your essay.
- I often find myself being a bit perfectionistic when writing essays since there is the idea that there often is something more that can be done.
- I tend to be a perfectionist and I am trying to multitask with different aspects of the written assignment all at once.
- Because you don't exactly know what's good and what's not good.
- Sometimes I don't know what is expected of me.
- It's hard to know what is expected from you.
- The rules are sometimes a bit vague.

### ***Fear of making mistakes***

- The fact that once I turn it in, I can't edit it anymore.
- If I follow the proper rules.



- The formulation of good sentences and mostly the use of sources. I find reading, using, and correctly referring to an academic source to be very anxiety-evoking.
- The pressure of having correct information.
- Feeling like I am not writing relevant information and I am missing important details.
- Just the fact that there are a lot of complex rules.
- I worry I messed up the formatting.
- Sometimes I forget like two words in the whole paragraph, which lowers my grade.
- It is a lot more difficult than tests because you can do so much wrong.
- Much room for faults.
- Not fully understanding the assignments and writing something embarrassingly wrong.
- I am afraid that I do not do it right.
- I'm afraid I'm doing it wrong.
- I worry about plagiarism.
- If you make a small mistake in the citing source you will be severely blamed.
- Lots of room for errors.
- Thinking that maybe I'm not doing it right and therefore I would get a bad grade and fail the course.
- I also feel nervous about making sure the format is okay and that plagiarism is low.
- Sometimes there are keywords that need to be used however you are not sure which ones.

### ***Personal Performance and Effort***

- If it's good enough.
- I would feel personally attacked if graded badly.

- Not knowing whether they are deemed sufficient. And sometimes it is hard to assess one's own performance. Often, I cannot look at my own work with the necessary distance.
- That it's not just about knowing something but also formalia etc..
- It is hard to predict how I did.
- It is very personal and individual.
- That it feels more personal and a bigger representation of my intelligence and creativity than multiple choice exams. Hence, there might be more pressure.
- Being afraid of failure is the most stressful. Other than that it's nice.
- Someone will actually read and assess your own work.
- The thought that my written assignment is not good enough gives me anxiety.
- Seeing how other students do and wanting to do better.
- Same thing as open questions, it being/feeling personal.
- Scared that I won't do well.
- It's mirroring your talents and weaknesses. It will show how well you are in writing (in general), not just how well you know the topic.
- Sometimes I worry that my work is worse than other people's because I often don't have an indication of how others are doing.
- I have too much time to overthink everything I write. I start doubting every sentence and I could always spend more time on it, which makes it loom over me all the time.
- It takes a lot of time and effort.
- What if all the work was for nothing?

### *Writing Skills*

- I have dyslexia and writing therefore takes a lot of effort and energy and I often can't see my own mistakes.
- I get anxious at the idea that I might have missed something like a spelling error, or used wrong grammar.
- That you have to demonstrate all your knowledge in words that can be understood and in a small time frame.
- That I won't be able to express my thoughts correctly, as I often struggle with wording and organizing what I want to say.
- The formulation of good sentences and mostly the use of sources. I find reading, using, and correctly referring to an academic source to be very anxiety-evoking.
- If the quality is good enough.
- The pressure of having good writing skills.
- I worry I didn't write well enough.
- I worry about the quality of the assignment and whether I have worded my thoughts well.
- I am just not really good at writing and I find it really hard to keep a good structure in my texts.
- I am not sure if I am writing correctly.
- I have a hard time writing down my thoughts.
- I find it quite stressful to determine whether I've put my knowledge in the right words so it answers the whole question.
- That you get judged over your writing skills, which I take pretty personally often.

- The looming pressure of meeting expectations and the fear of not expressing thoughts clearly enough can make written assignments anxiety-inducing.
- Doubting if my writing is correct.
- I am unsure whether my writing is academically worthy.
- That my way of writing is not clear.
- Insecure about my writing skills, the idea that it can always be better/perfectionism.
- Not writing enough or not the right justification.
- That it is difficult to find the right words.
- It's mirroring your talents and weaknesses. It will show how well you are in writing (in general), not just how well you know the topic.
- Not being able to articulate my thoughts clearly enough.
- The style you write.

### ***Time Pressure and Deadlines***

- That you have to demonstrate all your knowledge in words that can be understood and in a small time frame.
- The deadline.
- The deadline.
- The time pressure combined with the difficulty of starting the task.
- The start.
- Written assignments mostly take more time than I calculate.
- The deadlines, I always finish an essay right before the deadline somehow.
- They are very complex and need a lot of time, effort, and organization.

- Maybe a deadline, but usually I am well organized and don't face issues with this either way.
- The deadline.
- It takes a lot of time and effort.
- The time and creativity it takes to make.
- Deadlines.
- Starting to work on them, and all the preparation and effort you have to put in them.
- Time pressure and resources.
- What I find anxiety-evoking about written assignments is the deadline.
- They are very complex and need a lot of time, effort, and organization.

### ***Evaluation and Grading***

- Assignments are often a lot of work and sometimes it's very hard to find the right papers etc.. This means that you can put in a lot of effort with rather little result.
- Grading criteria can be unclear. This is lessened if there is a feedback round first, before the final product hand-in.
- I was worried that my examiner would not like the topic I chose or would show bias in my work due to this.
- It's most of the time dependent on which teacher you have, some might be looser with checking/correcting.
- When the teacher doesn't agree with your view described in the essay, you have to be very sure it's well argued, if not the critique is catastrophic.
- I'm worried I won't answer in a way that makes sense for the teacher.

- The looming pressure of meeting expectations and the fear of not expressing thoughts clearly enough can make written assignments anxiety-inducing.
- Waiting for my mark.
- The time waiting for evaluation after submission can be a little nerve-wracking and I find myself thinking about my work a lot.
- I worry because there is no one right answer and it is relatively subjective.
- I find that it can often be subjective.
- The bias of the teacher.
- Too much pressure and expectations on me.
- Often no clear boundaries and expectations and not clearly communicated how they are going to be graded.
- Getting a good grade.
- That it will not be good.
- It is subjective.
- That the person grading my essay is biased or doesn't like what I wrote and will not give me a pass.
- I feel nervous about whether I've done a good enough job to get a good grade, have I met the guidelines properly?
- The waiting time before getting my paper graded provokes quite a lot of anxiety for me.
- Moreover, I am concerned about how good my paper is and how the teacher is going to grade it.

- I dislike written assignments because it feels like you're trying to please the person who will review them, which is anxiety-inducing.
- Not being able to cover all the requirements of the topic and meet the expectations of my examiner.
- I'm not familiar with them and the criteria for a good grade are a little arbitrary.

### ***Nothing***

- I can't really think of something.
- I do not find it anxiety-evoking.
- I don't find written assignments anxiety-evoking.
- I don't really feel anxious during these assignments, just wanted to do it right. But having more time and not having the pressure of having to perform within 2 hours, made me feel more 'relaxed'.
- Nothing really.
- Again nothing.
- Making them is not anxiety-evoking for me.
- I don't necessarily find them anxiety-evoking, only if they have to be written on-site.

### ***Unclassified Responses***

- I don't know.
- You have to concentrate really well.
- To write them.
- It is also too abstract for me. I don't like those types of questions.

## **Multiple-Choice Exams: Responses and their Classification**

### ***Trick Questions and Similarity of Answer Options***

- When two options are very similar.
- When there are two very similar answers and they are both right but one is slightly better, that frustrates me as it is not an objective measure of my knowledge.
- When the question is vague and 2 answers are possible.
- When asked which one fits 'best'.
- There are always two answers that are in a certain way both true, you just have to guess.
- The choices confuse me which leads to me doubting myself and can be anxiety evoking sometimes.
- The answers are much like each other.
- The amount of trick questions.
- That you can easily pick the wrong answer if they are similar.
- Sometimes 2 answers are so similar that you think they can both be correct.
- Sometimes there is more than one answer that could be correct and you really have to dissect the questions. I understand however that that is necessary otherwise exams would be too easy.
- Sometimes more than one answer seems to be correct, so I keep changing my response, causing stress.
- Sometimes I am split between 2 options and I am not sure which one is correct, I am afraid of choosing the wrong one despite being so close to answering right.
- Because you quickly hesitate between answers.
- Often two answers are very similar, where 1 wrong answer can sometimes lead to failure.



- Many answer options are kind of the same and you can easily choose the wrong answer because it's not a big difference to the right answer.
- I'm scared I'm going to doubt between two answers that look right and choose the wrong one.
- Hesitating between 2 (or more) options.
- Having multiple answers that could be right.
- You often have to choose between two answers that look alike.
- With most questions, there are at least 2 answers that look kind of right.
- Tricky questions, when it's wrong it's wrong and you can't negotiate.
- To not fully understand the questions or being uncertain due to the answers being too similar/all possible to be right.
- They often have a lot of trick questions where more than one answer seems right or I can't seem to find the difference between two answers.
- There are always trick questions.
- There are often doubts about the options that are presented and it is difficult to trust yourself sometimes.
- The pressure of doing well and mixing the answers because they look alike.
- Often I do understand the term used in the question, and then there are two answers that could be right, and I always choose the wrong one even though I understand everything.
- The choices often look alike, making me doubt myself.
- The answers look the same, just a little bit different. It's hard to pick out a good answer.
- The ambiguity of the answer options.

- That two options both seem to be right and if I'm not sure which one is right it makes me anxious about my final grade.
- They are sometimes tricky and you may not be sure if you have chosen the correct one even if you have studied a lot for the exam.
- That they are often trick questions or focusing on small details I might not know, even though I studied the general topic quite well.
- That I'm getting confused by multiple answers because I'm not sure which one is right.
- The fact that the answers are already set and most of the time the answers look similar to each other so it is sometimes difficult to remember the difference. The similarity can confuse you.
- Sometimes two of the answers provided are very similar and I need to decide only on one which sometimes ends up being the wrong answer.
- Sometimes there are several answer options that seem possible, and I'm afraid I'll have to get a lot of questions right due to guessing corrections.
- Sometimes there are 2 answers that both seem applicable and right, so then it is just really hard to find out which one of them is the right one.
- Sometimes the answers are very similar to each other or are worded in a way that is confusing or unclear.
- Sometimes the answer options are ambiguous and it's hard to tell which one is the right answer option even though you know the content well enough.
- Sometimes I find the wording of the questions ambiguous and though I know the concept I may have a difficult time understanding what is asked. In open questions I can express my thoughts better.

- Only if the question is asked in a shitty way.
- If two or three answers seem unclear or technically identical.
- Often the choice between multiple answers that could be correct. This can be stressful.
- Often I can write off 2/4 options, but the other 2 are either similar or both sound right.  
But in multiple-choice exams, I can't explain my answer, so choosing the wrong one is immediately wrong.
- Not too much, but if I had to choose something it would be that the answers are all very similar.
- Most questions have two similar answers.
- Most of the time two answers seem to fit. And if you select the wrong one, the answer is completely wrong, you cannot get half a point for the steps you took, to get the answer.
- I feel anxious when I'm not sure between two choices.
- When more than one option looks correct.
- I might know the real answer, but the options make me doubt myself.
- I am usually in doubt between two answers.
- How sometimes all of the answers seem correct so it's very misleading and you don't know if you did well or not.
- For selecting the wrong answer, maybe you fell into the trap question.
- Bad questions, ones where there is not one 'superior' answer option.
- Answers can seem nearly the same.
- A lot of the time you know the answer to the questions, but the multiple-choice answers are misleading.

- Sometimes questions are poorly written and none of the options make sense, it is the opposite: two or even three of the options technically make sense and so you're forced to guess.
- Wasting too much time debating between possible answers to one question.
- When the answer you think it is is not an option.
- When you think the right answer is not an option.

### *Nature of the Format*

- There is often little context to multiple questions.
- The fact that we can't explain or justify our answer.
- The fact that it's either completely wrong or completely right, there's no in-between.
- The fact that it is either wrong or right, no in-between.
- That it is a definite choice, you can't write down everything you know and at least provide most of the information.
- Seeing all the different answer possibilities.
- Choice stress.
- You're either right or you're wrong, there's no in-between like when answering an open question.
- You can't explain your answers, so I feel like I don't have control over the result.
- There is only one right answer, so you either get a point or you don't.
- There is no in-between. You either have it right or wrong, where you are not allowed to ask questions.
- There are more wrong than right answers.

- The way you have to know specifically the answers, you can't talk your way around a problem to show you understand the bigger issue.
- The possibility of failing them, with the idea that they are supposed to be easier than open questions.
- The all or nothing nature of them.
- That the wrong answers are often listed as an option, so I tend to think I'm right when I could not be.
- That multiple answers can confuse one sometimes, where an open question might indeed lead to a more specific answer and representation of knowledge.
- In multiple choice exams I can't explain my answer, so choosing the wrong one is immediately wrong.
- Can't justify it, wrong = wrong.
- It just makes me doubt myself and my judgment. Having options sometimes makes it harder.
- It is usually very specific and based on details. No matter how hard I study beforehand, I never know if it's enough.
- Clicking the wrong answer by accident.
- The questions are sometimes very specific, so I am afraid I didn't study enough.
- Being wrong by just one answer.

### ***Guess-Rate and Grading***

- The gambling odds.
- Guessing every question you don't know wrong.

- I think that mainly the fact that there is a 'guess factor' applied to the grades, so you have to have a lot of questions correct to pass the course. For example 19 out of 27 questions, that's 70.37%.
- There was a guess rate correction, and your answer is either right or wrong.
- The high chance of guessing and therefore the minimum amount you need to get right.
- The pass mark of 70% and above is high.
- They are graded quite strictly and you often get your mark immediately after finishing, which makes you very aware that every answer counts.
- You can't make a lot of mistakes, as they compensate for the multiple choices with stricter grading.

### ***Comprehension and Understanding***

- Not being able to understand the words in English.
- I struggle a lot with my reading comprehension, so even when I understand the subject, all the answer options confuse me and I often read them wrong.
- I'm afraid I won't select the correct answer because of misunderstanding the phrasing of the question, which I am likely to do under stress.
- The fact that very often MC questions can be interpreted by the students in different ways, leading to different answers.

### ***Worries Independent of Exam Type***

- Still a test.
- I find the test part more anxiety inducing, what if I don't do well?
- Just more normal stress to perform.
- Just the concept of the grade it comes with, like any exam.

- Just that it is an exam, not that it is multiple choice. I feel more relaxed in MC exams than in other types of exams.
- Just that it is a test which a lot relies on.
- It's an exam.
- I think exams always cause stress. That's because you want to do well and pass the exam.
- I get very stressed easily, so just knowing if I press one wrong option I can fail, is stressful.
- I find exams anxiety-evoking so this includes MC exams.
- Usually being in a room with a lot of people.
- The atmosphere in the room is very tense.
- I get anxiety because I am afraid I did not study well enough.
- I am afraid I forget what I learned, or that I learned another term or example for the same situation that is asked but I do not recognize it.
- I want to get a good grade.
- I worry that they ask the things I found the hardest.
- The score I get for the exam.
- If they ask specific questions and I blank out and cannot pick the correct option.
- The fear of failure.
- The fact that you don't get your score right after.
- The fear of failing my exams.
- The feeling of uncertainty.

- Not getting my scores after I finish the multiple choice exam and waiting a week before the results can be quite stressful for me.

### *Nothing*

- Nothing, really, because I know I can do them.
- Nothing.
- Nothing.
- Nothing.
- Nothing.
- I don't really feel anxious when I'm taking a multiple choice exam.
- I don't have anxiety about those questions.
- I don't find it anxiety evoking.
- Nothing much.
- Nothing in particular, it is a very straightforward examination method.
- Nothing, I'd say it's overall a good experience.
- Nothing.
- Not much.
- Not much, because of the given answers we always have the answer in front of us to activate existing knowledge.

### *Unclassified*

- The fact that I might have checked a different answer than I intended and that I didn't catch the mistake.
- That I will accidentally click the wrong thing and lose points.



- Questions about the details that have been mentioned once briefly, that I have not studied.
- Not recognizing any of the terms in a particular question.
- I just sometimes stress about the level of detail of the questions.

## Appendix C

### Prompts and Input

This appendix includes all prompts along with the corresponding input. Changes made to the input are highlighted, and details regarding these changes can be found in the thesis.

#### Prompt

“Can you please check the discussion section of my bachelor thesis for grammar, spelling, and wording, and adjust it accordingly?”

#### Input

##### Discussion

The purpose of this thesis was to determine students’ preferences regarding different types of examinations. While previous studies have primarily focused on comparing MC and OQ exams, this thesis adopted a more comprehensive approach by including PTs as an additional assessment method. Furthermore, this thesis sought to enhance our understanding of SEA **with regard to** different examination methods.

##### Students’ Preferences for Multiple-Choice Exams

The results support our first hypothesis, showing that students tend to prefer MC exams over OQ exams and PTs. Concerning OQ exams, our findings are consistent with those of prior research (Birenbaum & Feldman, 1998; Holzinger et al., 2020; Tozoglu et al., 2004; van de Watering et al., 2008; Zeidner, 1987). As previously stated, factors such as perceived objectivity, reduced difficulty, and lower anxiety levels contribute to this preference (Holzinger et al., 2020; Tozoglu et al., 2004; van de Watering et al., 2008; Zeidner, 1987). The results of our subscale analysis also support this claim, showing that students rated MC exams as more objective and less difficult than OQ exams. With regard to PTs, our findings make a significant contribution to

the existing literature. Like OQ exams, PTs were rated as less objective than MC exams, which **is consistent** with criticisms that both formats suffer from subjective and inconsistent scoring (Braun, 2019; Hift, 2014). **In addition**, students perceived PTs as more challenging than MC exams, which may be attributed to their unfamiliarity with such tasks (Jones et al., 2021; Lynam & Cachia, 2018).

Importantly, students perceived MC exams to be less indicative of their performance compared to both other formats, which aligns with prior research (Jones et al., 2021; Struyven et al., 2005; Tozoglu et al., 2004; Zeidner, 1987). Yet, **MC exams were still** rated as more likable **compared to** OQ exams and PTs, possibly due to their associated advantages. In conclusion, these results indicate that while students recognize the strengths of OQ exams and PTs in demonstrating their abilities, they tend to favor MC exams due to perceived objectivity, reduced difficulty, and general likeability. This preference remains robust even when considering the potential benefits of other assessment formats.

### **State Evaluation Anxiety and Why It Might Occur**

Consistent with our second hypothesis, MC exams elicited lower SEA levels than OQ exams. However, the third hypothesis was not supported, as MC exams unexpectedly showed lower SEA levels than WAs, contrary to our prediction. Moreover, the prediction that WAs would elicit lower SEA levels than OQ exams was not significant.

The finding that MC exams elicited lower levels of SEA compared to OQ exams aligns with previous research by Zeidner (1987) and Tozoglu et al. (2004), in which students rated MC exams as less anxiety-evoking than OQ exams. However, it should be noted that neither study specifically measured SEA. The finding that MC exams elicited lower levels of SEA compared to WAs is inconsistent with previous research suggesting that traditional exam settings are

perceived as more anxiety-inducing than alternative methods (Jones et al., 2021). Sotardi (2018) offers a plausible explanation for this discrepancy, **proposing** that depending on the assessment format, different situational factors can provoke concerns regarding success and failure, thereby promoting SEA. Therefore, although the assessment setting may still have contributed to SEA, other factors may have been more influential, resulting in findings that contradict our hypothesis.

This idea is further supported by the findings of our qualitative analysis. Regarding Was, different themes emerged that led to concerns, potentially leading to higher levels of SEA compared to MC exams. For instance, students struggled with the freedom and creativity required for WAs, finding it overwhelming to make decisions independently without assurance of being on the right track. This finding is interesting as it contrasts with the results of Lynam and Cachia (2018), where students valued assignments for allowing autonomy and control over their learning, which they felt traditional assignments lacked. However, students also emphasized the importance of feedback and teacher support, as well as clear guidelines, to reduce uncertainty and worries (Lynam & Cachia, 2018). It **could be** possible that both aspects were either lacking or poorly implemented in our student sample. Moreover, while studies have found that students tend to value PTs for showcasing their abilities (Jones et al., 2021; Lynam & Cachia, 2018), some students in our sample found this aspect anxiety-inducing, fearing that poor grades would reflect negatively on their skills. Lastly, students reported anxiety about approaching deadlines, with some admitting to procrastinating until the last minute. Sotardi (2020) suggests that having excessive time for assignments might encourage maladaptive writing strategies, including procrastination.

Moreover, differences in SEA between OQ exams and WAs were non-significant. However, despite the lack of significant differences in SEA among the exam formats, the unique

situational factors inherent to each still contribute to SEA (Kuhlemeier et al., 2002; Sotardi, 2020) and warrant discussion. Concerning OQ exams, students were primarily concerned about losing points due to spelling errors and correctly using specific terminology. The latter was closely linked to the category of “memory-related stress”, as students worried about forgetting important terms or blanking during the exam. In contrast, MC exams rely on cued recall, which can reduce anxiety by providing answer options (Zeidner, 1987). Essentially, these concerns indicate that students are primarily worried about generating responses during OQ exams, a concern that appears to be widespread among students as shown in our results and other studies (Jones et al., 2021; Tozoglu et al., 2004; Zeidner, 1987).

Lastly, our qualitative analysis revealed some anxiety-evoking aspects about MC exams. For example, students were worried about similar answer options, trick questions, and the condition that answers were either right or wrong. These findings align with those of Zeidner (1987) and Tozoglu et al. (2004), indicating that they are common worries among students regarding MC exams. Yet, these concerns appear less significant than those associated with OQ exams and possibly WAs, since MC exams elicited the lowest levels of SEA.

### **Limitations**

Several limitations regarding the results of this study should be noted. Firstly, our findings cannot be generalized to subjects outside of psychology and sociology, as assessment methods may vary across disciplines (O’Neill & Padden, 2022). Additionally, this thesis was restricted to students from the University of Groningen, so our findings may not apply to other universities with different assessment strategies. Moreover, since most of our participants were first-year bachelor students, it is important to be cautious when applying our findings to students in higher academic years or master's programs, as their perceptions might differ.

Certain limitations of this study could be addressed in future research. For example, one shortcoming is that we did not limit PTs to a single method but included multiple types, such as group work and presentations. This variability could reduce the reliability of our findings, as students might have different attitudes towards each type of PT. Regarding SEA, one limitation is the reliance on students' reflections on their feelings and emotions during final exams. This reliance on memory may introduce inaccuracies, as students might not precisely recall their emotions experienced at the time of the exams. Future research could address this issue by administering questionnaires immediately after exams to capture students' feelings more accurately.

### **Implications and Directions for Future Research**

Despite these limitations, our results suggest several practical implications and directions for future research. Firstly, we recommend that educational institutions continue to use MC exams as final examinations. In cases where they are less used, they could be integrated more often, considering the preference for them demonstrated by our sample. Importantly, Holzinger (2020) notes that students are likely to be more motivated and perform better when assessed through their preferred methods. However, it is important not to overgeneralize our results and assume that the preference for MC exams applies universally to all students. As noted by Struyven et al. (2005), students' assessment preferences are personal and can vary based on factors like trait test anxiety, self-regulation skills, and personality traits. Therefore, for future research, it would be valuable to extend the current findings by examining how individual differences play a role in students' exam preferences. Moreover, future studies could broaden our conceptualization of general preference to include more dimensions. For example, Zeidner (1987) and Tozoglu et al. (2004) have considered factors such as "expected success",

“familiarity”, and “perceived workload”. Research that examines students’ preferences across a wider range of variables could provide a deeper understanding of why students might prefer one exam over another.

Our finding that MC exams induce lower SEA levels compared to OQ exams provides further justification for using MC exams more frequently, to create a less stressful testing environment. However, in educational settings where educators opt for diverse assessment methods, it is crucial to implement them in ways that reduce SEA, given its association with several negative outcomes (von der Embse et al., 2018). Our qualitative analysis provides important insights on how to potentially reduce students’ anxiety regarding different assessment formats.

Firstly, our findings highlight a necessity for improving the design and implementation of WAs. For instance, offering feedback and support by teaching personnel, as well as providing detailed guidelines, could alleviate anxiety stemming from the freedom and creativity involved in these tasks (Lynam & Cachia, 2018). Additionally, to mitigate procrastination tendencies, educators might consider implementing incremental deadlines to encourage better time management and reduce last-minute stress. Regarding OQ exams, regular practice with open-ended questions in the form of mock exams might help students become more comfortable with this format. Moreover, to address the fear of losing points due to spelling mistakes and writing errors, educators could implement policies that minimize the impact of minor errors on the overall grade, focusing primarily on content understanding. Finally, although MC exams are perceived to be less anxiety-inducing, some students expressed concern about the possibility of trick questions. Brady (2005) provides some guidance for the design of MC questions. It is recommended that question designers not only avoid the inclusion of trick questions, but also

utilize correct grammar, refrain from including negative stems, and maintain clarity and simplicity in their questions, to ensure that students can effectively engage with them.

In terms of future research, it would be useful to extend the current findings by determining the relevance of different situational aspects in promoting SEA. Furthermore, there is a necessity for research to identify strategies that effectively reduce SEA across various exam formats, beyond those suggested above. Lastly, despite these findings, it is important to acknowledge that universities are challenging environments where some stress is part of the learning experience (Jones et al., 2021). However, it is crucial to be aware of assessment methods that endanger student well-being by creating unnecessary stress and anxiety without any educational benefits.