

University of  
**Southern**  
**Queensland**

# **COMPETENCE, CONFIDENCE AND OPPORTUNITY OF EARLY CAREER SECONDARY TEACHERS TO CREATE EFFECTIVE SUMMATIVE ASSESSMENT**

A Thesis submitted by

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## **ABSTRACT**

One of a secondary school teacher's most complicated roles is that of creating summative assessment. With the absence of specific training in summative assessment creation in initial teacher education programs since the introduction of the Australian Professional Standards for Teachers in 2011, a gap has emerged in the profession's expectations. This research delves into the complex role of early career teachers in Queensland in creating summative assessment, ultimately proposing a model for professional learning to support those embarking on their teaching journey. Employing an exploratory quantitative survey with 116 teacher respondents, the thesis consists of four papers: a systematic literature review defining quality indicators for effective teacher created summative assessment, a conceptual paper presenting a proposed framework, an exploratory factor analysis validating the conceptual framework, and analysis of survey results. The findings reveal that effective summative assessment exhibits high levels of validity, reliability, fairness, authenticity, and flexibility. Additionally, a practice framework emphasising an iterative process involving increasing Competence (knowledge and skills), Confidence and Opportunities (to create, reflect, learn and plan) is conceptualised. Teachers prefer this process to occur within their context, under the mentorship of experienced colleagues. The study contributes to theory by providing a set of quality indicators for the creation of effective summative assessment, and a practice framework for the improvement of teacher-created summative assessment.

## CERTIFICATION OF THESIS

I, Nicole Brownlie declare that the PhD Thesis entitled *Competence, Confidence and Opportunity of Early Career Secondary Teachers to Create Summative Assessment* is not more than 100,000 words in length including quotes and exclusive of tables, figures, appendices, bibliography, references, and footnotes.

This Thesis is the work of Nicole Brownlie except where otherwise acknowledged, with the majority of the contribution to the papers presented as a Thesis by Publication undertaken by the student. The work is original and has not previously been submitted for any other award except where acknowledged.

Date: 27 November 2023

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## STATEMENT OF CONTRIBUTION

Paper 1:

**Brownlie, N.,** Burke, K., & van der Laan, L. (2023). Quality indicators in effective teacher-created summative assessment, *Quality Assurance in Education*, 4. <https://doi.org/10.1108/QAE-04-2023-0062>

The student contributed 90% to this paper. Collectively, Katie Burke and Luke van der Laan contributed the remainder.

Paper 2:

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Student contributed 85% to this paper. Collectively Luke van der Laan and Katie Burke contributed the remainder.

Paper 3:

**Brownlie, N.,** & van der Laan, L.(2023). *Dilemma of expectations? Identifying the factors underpinning early career teacher summative assessment creation* [Manuscript submitted for publication]. School of Education, University of Southern Queensland. Submitted to Australian Educational Researcher.

The student contributed 85% to this paper. Luke van der Laan contributed the remainder.

Paper 4:

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The student contributed 85% to this paper. Katie Burke and Luke van der Laan contributed the remainder.



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## DEDICATION

To my gorgeous son Isaac, a reminder of the stage we are at:

Son – “Mummy, what does an apple a day keeps the doctor away mean?”

Mum – “If you keep playing on my iPhone, you’ll never get a PhD!”

To my beautiful daughter Lucy:

You can do anything you put your mind to – except to be a YouTube star.

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# TABLE OF CONTENTS

ABSTRACT .....	i
CERTIFICATION OF THESIS .....	ii
STATEMENT OF CONTRIBUTION .....	iii
ACKNOWLEDGEMENTS .....	iv
DEDICATION .....	vi
TABLE OF CONTENTS .....	vii
LIST OF TABLES .....	x
LIST OF FIGURES .....	xi
LIST OF APPENDICES .....	xii
ABBREVIATIONS .....	xiii
DEFINITION OF KEY TERMS .....	xiv
CHAPTER 1: INTRODUCTION .....	1
1.1. Overview .....	1
1.2. Background to the Study .....	3
1.3. Context of the Study .....	4
1.3.1 The Queensland Schooling Context .....	5
1.3.2 Secondary School Assessment Landscape in Queensland .....	6
1.3.3 The Need for Effective Summative Assessment .....	7
1.3.4 Initial Teacher Education in Queensland .....	10
1.3.5 Professional Standard 5: Responsibilities of ITE Programs .....	11
1.4. Research Problem .....	14
1.5. Purpose of the Research .....	16
1.6. Research Aims and Objectives .....	18
1.6.1 Research Aims .....	18
1.6.2 Research Objectives .....	19
1.7. Scope of the Research .....	20
1.8. Significance of the Research .....	21
1.9. Structure of This Thesis .....	21
1.10. Summary .....	23
CHAPTER 2: LITERATURE REVIEW .....	24
2.1. Introduction .....	24
2.2. Principles of Effective Teacher-Created Summative Assessment ..	25
2.2.1 Introduction and Background to Paper 1 .....	25
2.2.2 Published Paper 1 .....	28
2.2.3 Links and Implications for Paper 1 .....	45
2.3. Preparing Pre-service Teachers in Assessment in Queensland ITE Programs .....	45
2.4. Competence in Summative Assessment Creation .....	50
2.5. Opportunities in Summative Assessment Creation for Early Career Teachers .....	54
2.6. Summary .....	57
CHAPTER 3: CONCEPTUAL FRAMEWORK .....	60
3.1. Introduction .....	60
3.1.1 Submitted Paper 2 .....	62

3.1.2	Links and Implications for Paper 2 .....	88
CHAPTER 4:	METHODOLOGY .....	90
4.1	Introduction .....	90
4.2	Theoretical Underpinnings.....	90
4.3	Survey Design .....	99
4.3.1	Justification, Review of Literature and Selection of Method.....	100
4.3.2	Item Construction and Response Scales .....	101
4.3.3	Assessment of the Survey’s Validity and Reliability .....	105
4.3.4	Development of Draft Survey and Pilot .....	106
4.3.5	Publish and Administer Survey .....	108
4.4	Data Collection .....	110
4.4.1	Participants.....	111
4.5	Data Analysis.....	113
4.6	Ethical Considerations .....	114
4.7	Summary .....	115
CHAPTER 5:	EXPLORATORY FACTOR ANALYSIS .....	116
5.1	Introduction .....	116
5.2	Submitted Paper 3.....	117
5.3	Links and Implications for Paper 3.....	164
CHAPTER 6:	DESCRIPTIVE, FREQUENCIES AND CORRELATION ANALYSIS	165
6.1.	Introduction .....	165
6.2	Submitted Paper 4 .....	166
6.3	Links and Implications for Paper 4.....	220
CHAPTER 7:	CONCLUSION .....	222
7.1	Introduction .....	222
7.2	Overview of the Research Project.....	222
7.3	Contribution 1 – Quality Indicators of Effective Teacher-Created Summative Assessment .....	225
7.4	Contribution 2 – Practice Framework for the Improvement of Teacher-Created Effective Summative Assessment .....	228
7.5	Response to Research Sub-Question 1.....	231
7.6	Response to Research Sub-Question 2.....	233
7.7	Response to Research Sub-Question 3.....	235
7.8	Response to Research Sub-Question 4.....	236
7.9	Response to the Overarching Research Question.....	238
7.10	Limitations of the Study.....	239
7.11	Recommendations for Future Research .....	242
7.12	Conclusion .....	243
REFERENCES	.....	245
APPENDIX A	.....	264
APPENDIX B	.....	266
APPENDIX C	.....	268
APPENDIX D	.....	274
APPENDIX E	.....	283
APPENDIX F	.....	284

APPENDIX G .....	286
APPENDIX H .....	288
APPENDIX I .....	289
APPENDIX J .....	295
APPENDIX K.....	295
APPENDIX L .....	297
APPENDIX M .....	298
APPENDIX N .....	300
APPENDIX O .....	302
APPENDIX P.....	303
APPENDIX Q .....	304

## LIST OF TABLES

Table 1.1 <i>Australian Professional Standards for Teachers</i> .....	11
Table 2.1 <i>APST Standard 5 APST With Associated Skills</i> .....	47
Table 4.1 <i>Alignment of Survey Items to Research Questions and Conceptual Framework</i> .....	104
Table 4.2 <i>Sections and Focus of the Survey, Including Alignment to the Item Numbers</i> .....	107
Table 4.3 <i>Popular Social Media Platforms and the Largest Demographics of Users</i> .....	1209
Table 7.1 <i>Overview of the Four Papers and Their Connection to the Study</i> .....	224

## LIST OF FIGURES

Figure 1.1 <i>APST Standard 5 – Graduate Career Stage</i> .....	13
Figure 2.1 <i>PRISMA Flow Diagram</i> .....	27
Figure 2.2 <i>Differences Between Induction Programs</i> .....	56
Figure 3.1 <i>Framework for the Improvement of Effective Teacher-Created Summative Assessment</i> .....	88
Figure 4.1 <i>Research Methodology Used in This Study</i> .....	92
Figure 4.2 <i>Steps in Developing a Survey</i> .....	100
Figure 7.1 <i>Indicators of Quality in Summative Assessment Creation</i> .....	227
Figure 7.2 <i>Practice Framework for the Improvement of Teacher-Created Effective Summative Assessment</i> .....	230



## LIST OF APPENDICES

- Appendix A: *Australian Professional Standards and Focus Areas for Teachers from Graduate to Lead Career Stage*
- Appendix B: *Standard Five Focus Areas and Descriptors Across the Career Stages*
- Appendix C: *Systematic Literature Review Protocol*
- Appendix D: *Systematic Literature Review Notes*
- Appendix E: *Email of Acceptance from Quality Assurance in Education*
- Appendix F: *Task Sheet Template*
- Appendix G: *Example Standard Elaborations for Use in Year 9 English Assessment Tasks*
- Appendix H: *Email of Submission from Teachers and Teaching*
- Appendix I: *List of Items for Survey*
- Appendix J: *Correlation Table of 'Total' Column to Determine Concurrent Validity of Survey*
- Appendix K: *Notice of Ethical Approval*
- Appendix L: *Table of Frequency Distribution for Demographic Information*
- Appendix M: *Participant Information Sheet*
- Appendix N: *Front Matter of Survey Including Consent*
- Appendix O: *Email of Submission from Australian Educational Researchers*
- Appendix P: *Email of Submission from Educational Assessment, Evaluation and Accountability*
- Appendix Q: *Output Relating to Research*

## **ABBREVIATIONS**

ACARA – Australian Curriculum, Assessment and Reporting Authority

AITSL – Australian Institute of Teachers and School Leadership

APST – Australian Professional Standards for Teachers

EFA – Exploratory Factor Analysis

ITE – Initial Teacher Education

KMO — Kaiser-Meyer-Olkin

OECD – Organisation for Economic Co-operation and Development

PAF – Principal Axis Factoring

PRISMA – Preferred Reporting Items for Systematic Reviews and Meta-Analyses

PTT – Permission to Teach

QCAA – Queensland Curriculum and Assessment Authority

QCT – Queensland College of Teachers

TEQSA – Tertiary Education Quality Standards Agency

UniSQ – University of Southern Queensland (formerly USQ)

## DEFINITION OF KEY TERMS

The following key terms were used throughout this research. They are defined here to clarify the specific meaning in relation to this study.

**Assessment item:** A piece of summative assessment consisting of both a task sheet and rubric.

**Assessment literacy:** Having the skills and knowledge a teacher requires to measure and support student learning through assessment. This includes understanding the principles of sound assessment. Assessment literacy also includes knowing what is being assessed, why it is being assessed and how best to assess it (DeLuca et al., 2016, p. 248; Queensland Curriculum and Assessment Authority, 2023a; Stiggins, 1995).

**Early career teacher:** A teacher with less than five years of experience, either with provisional or full registration (Organisation for Economic Co-operation and Development, 2018; Queensland College of Teachers, 2023).

**Formative assessment:** “A process in which assessment-elicited evidence is used by teachers to adjust their ongoing instructional activities, or by students to adjust the ways they are trying to learn something” (Popham, 2009, p. 6). Formative assessment, whether formal or informal, is conducted during the course of study to inform teachers and students of their current understanding of the topic, allowing tailored teaching experiences.

**Full registration:** is granted by the Queensland College of Teachers on:

1. Completion of at least one year of full-time classroom practice or the part-time equivalent;

2. Successful demonstration of the APST at proficient standard; and
3. Completion of a provisional to full recommendation report (Queensland College of Teachers, 2023).

**Junior secondary:** Years 7–10 (inclusive) in a school. These are the last four years of compulsory schooling in Australia. The subjects taught must align to one of the subject curriculum documents in the ACARA curriculum and be taught and assessed against the set of achievement standards and content descriptions set out in the curriculum.

**Initial Teacher Education (ITE):** Either an undergraduate or postgraduate degree in teaching. The successful completion of this degree allows the graduate to become registered with the Queensland College of Teachers and be employed as a teacher.

**Permission to Teach (PTT):** a provisional registration given to pre-service teacher who has been employed as a teacher while still studying the remainder of their ITE degree. A teacher with a PTT typically has a reduced teaching load to acknowledge the time demands of both studying and teaching.

**Pre-service teacher:** An individual currently enrolled in an ITE program at either undergraduate or postgraduate level who is studying to be a registered teacher.

**Provisional registration:** Reflects achievement of the graduate level of the APST. People granted provisional registration include recent teacher education graduates, teachers applying for registration after a career break, or those with interstate or overseas qualifications (QCT, 2023).

**Rubric:** A document that provides a set of criteria and quality levels against which the student's response can be evaluated. It typically takes the form of a matrix, with criteria listed vertically and quality levels horizontally. A rubric contains the following elements:

- **Criteria.** Specific aspects or dimensions of the response will be assessed. These criteria can include factors like content knowledge, analysis, critical thinking, organisation, presentation skills, referencing, or any other relevant factors based on the nature of the assessment or curriculum requirements.
- **Quality levels.** A range of quality levels that represent various levels of achievement or proficiency. These levels may be described using adjectives such as excellent, good, satisfactory, and poor or represented using grade bands (A–E).
- **Descriptors.** Each quality level is accompanied by a concise description that outlines what a response at that level should entail. These descriptors help students to understand the expectations and provide students and markers clarity on how the work will be assessed. The descriptor at Satisfactory, or the C standard, is the minimum quality to indicate satisfactory performance. This is set according to the curriculum requirements.

**Summative assessment:** A task undertaken at the end of a unit of learning, providing evidence of a student’s overall knowledge, skills, or understanding of that unit. Summative assessment is also known as “assessment of learning.”

Summative assessment refers to the use of assessment-based evidence when arriving at decisions about already-completed instructional events, such as the quality of a year’s worth of schooling or the effectiveness of a semester-long algebra course. Summative assessment is intended to help arrive at go/no-go decisions based on the success of a final-version instructional program. (Popham, 2009, p. 6)

**Task sheet:** A document that sets out the assessment task to be completed. It includes the following information:

- Assessment item description. A clear and concise description of the task or question that students must address.
- Required response. The specific format or type of response expected from students, such as an oral presentation, formal examination, response to stimuli, essay, scientific format, performance, portfolio of evidence, or any other appropriate format.
- Relationship to the unit taught. How the assessment relates to the content and objectives covered in the unit or course.
- Submission date. The deadline or due date for the submission of the assessment.
- Response length. The expected length or word count for the response. Acceptable lengths for each year level are set by the QCAA.
- Additional instructions. Any other relevant guidelines, specifications, or criteria that students need to consider while completing the assessment.

**Teacher-created:** Assessment which has been designed by a teacher (usually within an individual school) to assess the content of the unit taught. “This does not include items which are administered by teachers but marked externally, nor the participation of a teacher in the development and marking of external tests and examinations” (Harlen, 2004, p. 1)

# CHAPTER 1: INTRODUCTION

## 1.1. Overview

This thesis reports on an investigation into the experiences of early career junior secondary school teachers in Queensland regarding the creation and implementation of summative assessment. Summative assessment is an issue of clear importance in secondary education, having been found to vastly affect how students learn, student motivation and self-efficacy and well-being (Peterson & Irving, 2008). It is also increasingly used as a quantitative metric for external organisations to determine the effectiveness of teaching, courses, and school performance (Gonski et al., 2018). Due to the increased value placed on the data used from these summative assessment items by multiple key stakeholders, it is more important than ever to ensure that teachers are proficient and confident in their ability to create and implement summative assessment.

Moreover, as the senior secondary schooling landscape in Queensland undergoes changes (Queensland Curriculum and Assessment Authority [QCAA], 2017), there is an increasing emphasis on the significance of summative assessment during the junior secondary years (Years 7–10). This emphasis is geared towards better preparing students for the challenges of senior external assessment. This study aimed to explore how and to what extent early career junior secondary teachers in Queensland had the opportunity and/or the capacity to develop and implement effective summative assessment. To achieve this, a quantitative exploratory survey was conducted, involving over 100 secondary teachers. The survey aimed to gather insights into their experiences with initial teacher education (ITE) training, opportunities for assessment creation since

graduation, and their preferences and needs for support to develop additional assessment creation knowledge and skills.

The project has resulted in original theoretical and practical research contributions that have the potential to inform future practice and support for early career teachers. First, a definition of the principles underpinning effective summative assessment is presented, which, to date, has not been identified in the literature. This definition, along with an accompanying set of quality indicators, now allows for a “common starting point” for assessment creation and future research into the improvement of summative assessment creation. Second, a model proposing a professional learning cycle is presented, emerging from the quantitative survey and systematic literature review results. The model explains how an early career teacher may progress through an iterative cycle of increasing competence, confidence, and opportunities for reflective practice to create more effective summative assessment items that are strong in validity, reliability, fairness, authenticity, and flexibility. Finally, a proposal for an approach to support secondary teachers’ confidence regarding summative assessment creation early in their careers is presented.

Ultimately, this research holds the potential to enhance the experiences of future school students through increased support for early career teachers in developing and facilitating effective summative assessment. This support, in turn, should translate into improved practice which allows students to effectively demonstrate their knowledge and skills, contributing positively to their motivation and learning.

This introductory chapter begins with an exploration of the study’s background followed by an overview of the contextual landscape in which the study was conducted. Specifically, it delves into the landscape of ITE in Queensland, with a



focus on how summative assessment is addressed within ITE programs. The identified research problem is then summarised along with the key objectives of the study and research questions. An outline of the methodology and significance of the research is presented, along with the scope of the study. The chapter concludes with an overview of the thesis's structure.

## **1.2. Background to the Study**

The impetus for this research began with personal experience: I graduated as a secondary school music and mathematics teacher and gained my first position in a small, rural school. Being the sole music teacher, creating summative assessments emerged as one of the most challenging and stressful demands in my early career. After almost a decade of teaching, I transitioned into higher education, teaching a course on assessment and reporting to pre-service teachers. I noticed that, since I had graduated as a teacher a decade earlier, explicit teaching on the creation of assessments had been removed from the ITE program. I was also part of conversations over wine (or sometimes even whine!) with teacher friends about the quality of assessment coming from their recently graduated colleagues. Their comments echoed my reading on teacher assessment literacy: “Despite recent enhancements to assessment education, including increased prevalence of explicit courses in classroom assessment, many early career teachers continue to demonstrate limited assessment literacy” (Coombs et al., 2020, p. 1). Similarly, DeLuca and Johnson (2017, p. 121) noted that, “Despite widespread calls for assessment capable teachers, research indicates that teachers generally maintain low levels of assessment knowledge and skills, with beginning teachers particularly unprepared for assessment in schools (DeLuca & Klinger, 2010; MacLellan, 2004).”

Motivated by my professional and personal interest in equipping young teachers in assessment creation, I immersed myself in both research literature and a more focused search into what was happening in universities and the broader profession. Then, in 2019, the senior secondary landscape changed considerably in Queensland, including the introduction of a state-wide external examination for each subject. This brought with it a renewed focus on summative assessment in junior secondary to ensure students would be prepared for the increased rigours of Years 11 and 12, including successful completion of the external examinations. As the focus intensified, so did the pressure on junior secondary teachers, demanding not only the quality of the assessment but also the trustworthiness of the data derived from the responses to those items. My professional experiences, observations, and engagement with the research literature in this field led me to recognise the value of undertaking a more formal study at the doctoral level. This study focuses on exploring into the knowledge, skills, and experiences of early career junior secondary teachers in Queensland, particularly in the creation of effective summative assessment.

### **1.3. Context of the Study**

While most people worldwide share the common experience of attending school and undergoing assessment, the nature of these experiences can be vastly different depending on the country, schooling sector, and governing bodies overseeing secondary education. Therefore, an introduction to schooling and assessment in Queensland, Australia, was important to situate the context of this research. Equally important is offering insights into the training received by pre-service teachers in Queensland, including the requirements set by external bodies

for ITE programs. This foundational knowledge was necessary to understand the experience of early career teachers, both in their training and in their current professional environment. In addition, it plays a key role in informing the research problem and the resultant research aims and questions in this study.

### **1.3.1 The Queensland Schooling Context**

Education in Queensland is divided into three levels: primary school, consisting of Foundation year to Year 6 (ages 5–12); junior secondary (Years 7–10), which is ages 12 to 15; and senior secondary (Years 11–12) for students aged 16 to 18. Children must have commenced school by age six, and students must complete Year 10 (*Schools Assistance Act 2008* [Cth]). They may continue with full-time education, training, or employment until at least 17 years old. There are three main sectors of schools—public (run by the Queensland Government Department of Education with free tuition), Catholic (governed either by Catholic Education or a school/diocese-run board, with varying costs depending on the school), and Independent (either religious or non-religious, governed by school boards or councils but within the bounds of legislation and government policy. Tuition costs are also dependent on the individual school).

Secondary school students attend school for an average of six hours per day, five days per week. Each day comprises subject-specific classes; however, the number of subjects studied each day, and the length of each lesson are left to the discretion of individual schools. The curriculum for Queensland is determined by the Queensland Curriculum and Assessment Authority (QCAA), a statutory body of the Queensland Government. From Foundation to Year 10, QCAA has adopted the Australian Curriculum from the Australian Curriculum and Reporting Authority

(ACARA). This national, independent statutory authority has developed and continues to refine a curriculum for each key learning area that must be taught, assessed, and reported against for each student. The QCAA has set the curriculum for senior secondary.

According to the *Schools Assistance Act 2008* (Cth), all schools must provide parents with a written report on their student's progress in each subject at least twice per year. This report must be based on at least one summative assessment against achievement levels (5-point scale A–E or equivalent) and be clearly defined against the content descriptions and achievement standards of the set curriculum.

Summative assessment is therefore conducted at least once per semester, per subject, and the results are assumed to be accurate and reliable as a reflection of a student's progress at that point in time. It is clear from these expectations from the Australian Government that summative assessment is essential to gauge and record a student's educational development and communicate this to parents/caregivers as evidence of the quality of learning occurring. Through the implementation of explicit instructions concerning summative assessment, the Australian Government can establish summative assessment results as valid and reliable data. This data can then be utilised at a national level for informed decision-making, whether for funding allocations, identifying future industry priorities, or considering potential changes to the school curriculum.

### ***1.3.2 Secondary School Assessment Landscape in Queensland***

The summative assessment from Foundation–Year 10 is designed, written, implemented, marked, and reported on by the classroom teacher. In senior secondary, the first three assessment pieces are also created internally but must be

endorsed by the QCAA before being administered. As with Foundation–Year 10, the marking and reporting of these assessments is completed by classroom teachers. However, the final piece of summative assessment in Year 12 is externally set for all students studying the subject in Queensland. It is marked, moderated, and reported on by the QCAA using experienced classroom teachers as markers. The external examination in senior secondary is a recent change, only commencing in 2019. Since this change, the freedom for assessment conditions, formats or standards has been significantly tightened compared to conditions pre-2019. This change has brought in higher expectations for teachers of senior subjects to ensure graduating students are fully prepared to succeed in an external examination (QCAA, 2020). Consequently, there seems to be increased pressure filtering down to junior secondary teachers.

There is a clear expectation that Year 10 students should be ready for the challenges of senior secondary assessment and, therefore, are expected to “practice” some of these assessment types, conditions, and standards while still in junior secondary (QCAA, 2023b). As such, junior secondary teachers must create summative assessment with more scrutiny attached to the design, marking, feedback, and outcomes. This necessity prompted the selection of junior secondary as the primary focus of this study.

### ***1.3.3 The Need for Effective Summative Assessment***

Effective summative assessment must accurately reflect the curriculum and content taught, allow for reliable marking and judgements to be made, and be unbiased, ensuring fair and equitable access for all students. These requirements guarantee the data collected is valid and reliable for educational systems and others

in education (DeLuca & Johnson, 2017; Panadero et al., 2022). To promote deep and personally meaningful learning experiences, assessment should also be authentic and incorporate an element of choice for the student (McEachen, 2017). Secondary school teachers are made aware that their assessment must be rigorous and of high quality, as assessment is “an integral part of learning and is seen as a key component in quality teaching” (Edwards, 2013, p. 213).

Ostensibly, the results of summative assessment are used primarily as feedback for students to indicate their understanding of the previously taught content. Teachers also use summative assessment data to inform future teaching strategies and report on student progress to parents/carers. Assessment data, however, is no longer confined to the classroom; it serves a broader purpose. Other teachers of the subject at the same year level, Heads of Department, Heads of Curriculum, and Principals use summative assessment data for moderation, ensuring fairness, and consistency across classes. This data also informs decisions such as ability streaming, support for exceptional students, and the allocation of the following year’s budget. Notably, these results extend beyond internal use. Over the past decades, external organisations, including governments and industry, increasingly rely on assessment data for high-stakes future planning, emphasising the necessity for assessment to be highly reliable and trustworthy (Australian Government, 2018; Organisation for Economic Co-operation and Development [OECD], 2008).

Accountability in education has strongly emerged as a global focus over the last three decades (DeLuca & Johnson, 2017). Governments, schools, industry, and parents have increasingly focused their attention on the performance of schools (Donnelly & Wiltshire, 2014). “Most countries now have national databases on

education and issue education statistics and indicators. International benchmarking is also increasingly common and is informing national education debates” (OECD, 2013, p. 1). This performance has been judged primarily through the achievements of students, meaning the method of determining these achievements must be an accurate and reliable reflection of student knowledge and skills.

In Australia, teachers have been tasked with creating summative assessment for students up to and including Year 10, and therefore, the quality of these items is expected to be high, allowing for accurate data to be collected. Some internal uses of this data are determining school quality, support for exceptional students, department funding, assuring “quality” student learning and appropriate progression, national benchmarking. (Australian Government, 2018; OECD, 2008). As a result, it is imperative that teachers have proficiency in understanding and creating assessment (DeLuca & Klinger, 2010; Iqbal et al., 2023; Mertler, 2009) right from their entry into the profession.

Although teachers are aware of the need for their assessment creation to be effective, many do not feel confident that they can achieve this, particularly early in their careers (DeLuca et al., 2016; Maclellan, 2004; Mayer et al., 2015). Many beginning teachers feel as though they are not adequately prepared for this complex task during their initial teacher education degree (Mayer et al., 2015) and then do not feel supported in their pursuit to acquire this skill during their first years of teaching (Santiago et al., 2011). It is, therefore, imperative to develop an understanding of what is taught in an ITE program and how both pre-service and early career teachers can be supported to transition into their role as classroom teachers with competence and confidence (Bahr & Mellor, 2016; Paul et al., 2022; Wyatt-Smith et al., 2017).

### **1.3.4 Initial Teacher Education in Queensland**

All ITE programs require accreditation from several bodies, with the Queensland College of Teachers (QCT) (2023) being the accrediting body for Queensland tertiary institutions. QCT collaborate with the Australian Institute for Teachers and School Leadership (AITSL), which also ensures the programs comply with the standards established by the *Tertiary Education Quality and Standards Agency Act 2011* (Cth) and the *Education Services for Overseas Students Act 2000* (Cth). The current requirements to be registered as a teacher in Queensland are for the successful completion of either an undergraduate or postgraduate degree in education, as well as a minimum of eighty days of supervised professional placement in schools (AITSL, 2022).

In 2011, in response to the *National Partnership on Improving Teacher Quality* (Council of Australian Governments, 2008) and the *Melbourne Declaration on Educational Goals for Young Australians* (Ministerial Council for Education, Employment, Training and Youth Affairs, 2008), AITSL created a set of professional standards to improve teacher quality and ensure a baseline of knowledge and skills required of a teacher prior to graduation and entry into the profession. The Australian Professional Standards for Teachers (APST) (AITSL, 2011) were thus introduced to the teaching profession in 2012.

The APST are made up of seven standards, grouped under three domains of teaching: Professional Knowledge, Professional Practice, and Professional Engagement (see Table 1.1).



**Table 1.1**

*Australian Professional Standards for Teachers*

Domain	Standard
Professional Knowledge	1. Know students and how they learn 2. Know the content and how to teach it
Professional Practice	3. Plan for and implement effective teaching and learning 4. Create and maintain supportive and safe learning environments 5. Assess, provide feedback and report on student learning
Professional Engagement	6. Engage in professional learning 7. Engage professionally with colleagues, parents/carers, and the community

Each of the standards are further broken into several specific focus areas, totalling 37 individual focus areas, which identify what a teacher at various stages in their career (Graduate, Proficient, Highly Accomplished, and Lead) should be demonstrating in their practice (see Appendix A). Within an ITE program, pre-service teachers must be able to demonstrate knowledge and skills according to each of the focus areas at the Graduate career stage. As such, in an ITE program, each of the focus areas must be taught, allowed time for practice, and assessed a minimum of two times across the degree. The Graduate standard of focus for this research is that of Standard 5—Assess, provide feedback and report on student learning (AITSL, 2011).

**1.3.5 Professional Standard 5: Responsibilities of ITE Programs**

Teacher competence in assessment is vital, and teaching this in ITE has been a priority for well over a decade. Prior to the release of the APST, the *Review of Teacher Education and School Induction* report (Caldwell & Sutton, 2010) stated the

first core skill of a graduate teacher was to “develop, implement, and use assessment” (p. 1). AITSL reflected this priority by devoting an entire professional standard to assessment. Professional Standard 5, “Assess, provide feedback and report on student learning” (AITSL, 2011), is comprised of five focus areas:

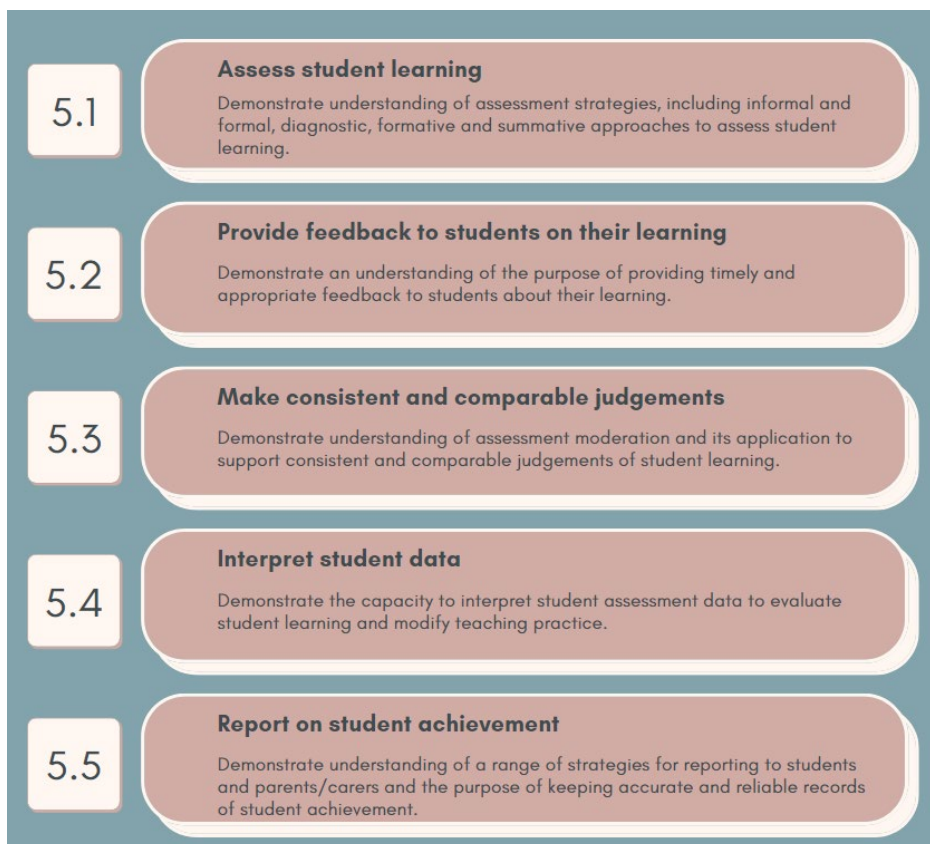
1. assess student learning
2. provide feedback to students on their learning
3. make consistent and comparable judgements
4. interpret student data
5. report on student achievement.

Each focus area remains the same irrespective of the career stage; however, the descriptors of what this means for each career stage are differentiated and clearly defined (see Appendix B). ITE programs are responsible for ensuring graduating teachers have demonstrated the five focus areas at the Graduate career stage.

Neither QCT nor AITSL have dictated how this standard must be taught—whether in a subject devoted to assessment, within a subject specifically covering a discipline subject, or even woven through curriculum and pedagogy subjects. What is stated, however, are the discrete skills that must be evidenced across the five focus areas. Figure 1.1 lists the Graduate career stage descriptors for each of the five focus areas. The cognitive verbs used for the Graduate career stage are *demonstrate understanding* (of the theoretical concepts of assessment strategies, of the purpose of providing feedback, of assessment moderation, and of the range of strategies for reporting) and *capacity to interpret* (student assessment data). These all relate to either *using* or *interpreting* existing assessment.

**Figure 1.1**

*APST Standard 5 – Graduate Career Stage*



*Note:* taken from (AITSL, 2011).

Of note is the *absence* of a particular skill—creating assessment. This is a requirement that was removed from ITE programs with the introduction of the APST from AITSL in 2011. It is unclear exactly why the ability to *create* assessment was taken out of the requirements of a teacher upon graduation and replaced with the lesser requirement to understand, interpret, and use existing assessment. The only hint came from Wyatt-Smith and colleagues’ report on *The Standards Project* (2013–2015) in 2017, which states, “the stimulus [for the project] came from the increasing recognition of the need for assessment-capable teachers on entry to the profession, *recognising that professional learning would be ongoing throughout the career*

[emphasis added]” (p. 251). It can be concluded from this statement, as well as the progression of the standards from the Graduate to Lead career stage, that there was an assumption that the development of assessment skills required time and opportunity to develop. The standard at which a teacher may graduate ensures they possess fundamental skills to appropriately assess students using existing assessment, mark and moderate the responses, and interpret the resulting data for reporting to key stakeholders. It is at this point where a gap in practice and difference in expectations emerges, thus identifying the research problem for this study.

#### **1.4. Research Problem**

Prior to the APST being introduced in 2011, ITE programs in Queensland adhered to the *Professional Standards for Queensland Teachers* (QCT, 2006) for defining quality graduate teachers. Of note was Standard 5—Assess and report constructively on student learning. Teachers needed to “use multiple ways and varied sources of gathering evidence for making judgements about student learning” by “developing assessment criteria and appropriately communicating these to students...and stakeholders” (QCT, 2006, p. 11). Therefore, any teacher who graduated from an ITE program prior to 2011 in Queensland was taught *how to create* assessment, not only how to understand, use, and interpret existing items. Understandably, those who became teachers under this system, may reasonably assume that graduate teachers post-2011 acquired the same skills through their program of study.

This difference in expectations of ITE training has led to a misunderstanding of the skills and knowledge with which a new graduate teacher enters the profession. Although AITSL has designed the APST with ongoing professional learning

throughout one's career as an underpinning assumption (Wyatt-Smith et al., 2017), the ramifications of this are not well understood within the profession. Assessment has been acknowledged as a "complex area of teaching" by employers of graduates from across the three schooling sectors (Public, Catholic and Independent), yet they also are strong in their view that "[assessment] is in need of strengthening in ITE programs" (Wyatt-Smith et al., 2017, p. 255). The concern with this misalignment of expectations between AITSL, ITE programs, and current employers of teachers is that employers consider today's graduate teachers to be underprepared (Schneider & Bodensohn, 2017; Craven et al., 2014). It would, therefore, be plausible that employers may not realise the necessity for significant professional learning and development to occur within the initial years of practice.

This is the crux of the problem. The misalignment of expectations is not the fault of AITSL, ITE programs, employers, or graduates. However, there is a distinct lack of clarity in communication between AITSL and employers about where ITE ends and where the resultant professional learning must begin. Considering the AITSL standards came into effect over ten years ago, it is of considerable concern that this dilemma of expectations still exists and that neither specific intervention nor proactive systems have been implemented.

At the heart of this issue are the early career teachers themselves and questions regarding how best to support them. Understanding their past and current experiences is essential to determine how they can be assisted in becoming competent and confident creators of summative assessment. As outlined by AITSL (2016), it is the responsibility of practitioners to direct their own professional development path once in the profession. Therefore, hearing directly from the practitioners themselves is imperative. This involves comprehending the skills and

knowledge acquired in ITE programs, understanding their feelings of preparedness on entry to the profession, and gathering data on the support provided as they progress to the Proficient career stage, whether through opportunities to learn more, practice, or receive tailored guidance. Lastly, it is crucial to listen to the perspectives of early career teachers regarding what they truly desire to aid their growth in crafting effective summative assessment. It is within the intersection of these considerations that this study seeks to position itself, aiming to propose a model of professional learning that supports early career teachers.

### **1.5. Purpose of the Research**

The purpose of this study was to explore the experiences of early career secondary school teachers in relation to the creation of summative assessment. The challenges I had personally experienced with assessment creation as an early career teacher and informal conversations with other educators, on top of the visible misalignment of expectations between AITSL, ITE programs, and current employers of teachers, all pointed to the need for study in this domain to be conducted. Additionally, initial reading into this issue revealed a gap in the literature. There were studies into specific areas of summative assessment and summative assessment items (Boud, 1990; Brady & Kennedy, 2019; Gulikers et al., 2004), assessment literacy of classroom teachers (DeLuca & Bellara, 2013; Laveault, 2016; Panadero et al., 2022), issues and challenges facing early career teachers (Ado, 2013; Lovett & Cameron, 2011; Mockler, 2022) and confidence of early career teachers in fulfilling their roles and responsibilities (Mockler, 2022; Moolenaar et al., 2012). However, considering the prevalence and importance placed on summative assessment in secondary schools within the Australian education system (Donnelly & Wiltshire,

2014), no studies were found that explored how to assist early career teachers to develop this skill following their graduation from tertiary study.

If existing studies were not available, then further research was clearly warranted to gather these missing insights from the early career teachers regarding their experiences and needs. In fact, previous research has explicitly acknowledged this gap and the need for research to be conducted in “understanding assessment literacy of classroom teachers” (Volante & Fazio, 2007, p. 750), “teacher candidates’ and teachers’ prioritisation and valuing of assessment within their own professional development” (DeLuca & Johnson, 2017, p. 422), the “relationship between pre-service education and candidate assessment efficacy” (Ogan-Bekiroglu & Suzak, 2014, p. 342), and how to create an environment for early career teachers to improve skills in a way which promotes confidence (Ewing & Manuel, 2005; Matre & Solheim, 2016). Therefore, an exploratory investigation into not only the knowledge and skills but also the opportunities available for early career teachers to create and implement effective summative assessment could begin to address some of these recommendations for future research and contribute to supporting pre-service and newly graduated teachers.

Given my aim of gaining empirical insights into early career teachers’ experiences with creating effective summative assessment that might contribute to more effective practice, it was imperative to clearly limit my research scope. Graduate teachers typically are given junior secondary classes when they begin in the profession. This study, by focusing on junior secondary summative assessment, would permit insights into the experiences of a cohort with a baseline of similar experiences. Moreover, gaining first-hand insights into the impact of the 2019 changes in senior secondary assessment practices on junior secondary teachers

was both timely and essential for a comprehensive understanding. The existing literature highlights that early career teachers need to be supported to increase their assessment literacy. Given the increased pressure resulting from the changes in senior secondary education flowing down to junior secondary teachers, this research is not only important but essential at this time.

## **1.6. Research Aims and Objectives**

### **1.6.1 Research Aims**

The aim of this study was to explore the views and experiences of early career junior secondary teachers in relation to teacher-created summative assessment, with a particular focus on what support (if any) they needed to create and implement effective summative items.

Therefore, the overarching research question for this study was:

*What do early career junior secondary teachers in Queensland need (if anything) to become effective creators of summative assessment?*

The following four sub-questions were determined as being able to help answer the overarching research question:

1. What skills and knowledge did early career teachers believe they possessed at graduation regarding the creation and implementation of summative assessment?
2. What opportunities are available in their current teaching role to create and implement summative assessment?
3. What is the perception of confidence of early career teachers to create and implement summative assessment?



4. What do early career teachers want (if anything) to improve the effectiveness of their summative assessment creation?

### **1.6.2 Research Objectives**

Based on the research questions above, the following key objectives were pursued throughout the study:

- 1) To explore what was typically taught in ITE programs in relation to assessment prior to the APST being released in 2011 and what is now taught.
- 2) To determine what opportunities are typically available for early career junior secondary teachers in Queensland to create and implement summative assessment while working towards the Proficient career stage.
- 3) To explore professional development available in Queensland in relation to summative assessment creation and what early career teachers require.
- 4) To gain an understanding of the level of confidence early career teachers have in relation to the creation and implementation of summative assessment.

The project was planned and conducted using quantitative exploratory survey research. Given the perceived misalignment of expectations of graduate teachers regarding their ability to create summative assessment tasks, it was considered important and timely to understand the subject from the view of a broad range of early career teachers. Survey research has been reported to be particularly useful for gaining an objective, initial understanding of a situation in order to put forward a model or proposed solution (Anderson & Lightfoot, 2022). This aligned with the desired outcome of the research, and so was the methodology chosen. The objectives were considered throughout this study, and the literature review reflects

these as the focus. The results of the survey and subsequent analysis and discussion in Chapters 5 and 6 lead to a deeper understanding of the issues underlying the objectives.

## **1.7 Scope of the Research**

The purpose of the study was to explore Queensland early career junior secondary school teachers' experiences with creating summative assessment. The scope was delimited to Queensland, rather than Australia, with two primary objectives: enhance the validity of the findings by ensuring near parity of experience; and to present the views and experiences of teachers currently navigating the changes in senior assessment post-2019 and subsequent effects on teachers involved in junior secondary assessment creation. Also, Queensland ITE programs undergo accreditation by the QCT, meaning expectations and practice of what is taught in an ITE program should be similar.

Early career teachers were chosen as the population demographic to explore current experiences of those who are the most significantly impacted by the misalignment of expectations regarding their ability to create and implement summative assessment. It is also the experiences in these first years that are the most difficult and critical to job satisfaction and retention (Karlberg & Bezzina, 2022). Change is a normal part of education; however, the effect of the notable change in assessment on an experienced teacher may look quite different to the effect on an early career teacher as they are still "finding their feet". Therefore, it was important to understand *what* early career teachers want to know and *how* they want to acquire these knowledge and skills.

## **1.8 Significance of the Research**

Primarily, it is the intention of this research to contribute positively to supporting teachers to create more effective summative assessment by understanding their experiences and identified needs for support (if any). This then has the potential to benefit their students through more effective assessment creation.

Further, teaching is well-known to be an incredibly stressful and demanding vocation with an alarmingly high attrition rate during the first five years of practice (DeLuca & Bellara, 2013; Ewing & Manuel, 2005; Pas et al., 2012; Wang, 2023). Supporting early career teachers is an important dimension to encourage them to stay in the profession. To identify the necessary support, this study garners the experiences of these teachers and based on the findings, proposes a framework for targeted professional development. The aim is to contribute to future practice by addressing the gap between the Graduate and Proficient career stages in assessment.

The results from this study are significant in that they reveal what these current early career teachers knew at graduation and then at the time of participating in the study, what opportunities have been afforded to them to create summative assessment in junior secondary since graduation, and what and in which format they would like to improve the effectiveness of their teacher-created summative assessment.

## **1.9. Structure of This Thesis**

The presentation of this research is in the form of a thesis by publication. Four articles have been written and submitted—and in some cases, accepted into—international, high-quality journals (*Quality Assurance in Education, Teachers and*

*Teaching, Australian Educational Researcher, and Educational Assessment, Evaluation and Accountability*), all which undergo a double-blind peer review process before being published. These papers form the basis of the research conducted for this study. A brief overview of this thesis follows.

Following this introductory chapter, Chapter 2 presents a literature review focusing on the four central tenets of the study. The first key focus is that of summative assessment and what makes a piece of teacher-created summative assessment “effective” or “of high quality”. Without understanding what the goal is, it is impossible to determine if the goal is ever reached (Evans, 2019). Introductory reading was undertaken to find a commonly agreed-upon definition of what constitutes effective or quality teacher-created summative assessment as a starting point. This was not found. Therefore, the first section of Chapter 2 is a systematic literature review paper (Brownlie et al., 2023) to determine a set of characteristics, which, when considered in the creation of a piece of summative assessment, could be termed “effective summative assessment”.

Chapter 2 continues after the first paper with an examination of relevant literature on the current preparation of pre-service teachers within ITE programs, the opportunities afforded to early career teachers to create and implement summative assessment, and the role confidence plays in teaching, especially within the early years. Chapter 3 consists of a submitted paper presenting the conceptual model designed for this study based on the preceding literature review.

The method of the study is delineated in greater detail in Chapter 4, including the decisions made in the lead-up to the survey being administered. This chapter then details ethical considerations, the data collection, and analysis of results. The findings of the study are presented over two papers in Chapters 5 and 6. The first of

these was an exploratory factor analysis, which resulted in the identification of three significant factors that contribute to the improvement of teacher-created summative assessment: Competence, Confidence, and Opportunity. The delineation of these three factors led to the revision of the conceptual framework. The second paper (Chapter 6) presents a frequency and correlation analysis of the data, considering the four research sub-questions.

Finally, in Chapter 7, the implications of the findings are considered, alongside reflection on the contribution of the study to the support of early career junior secondary teachers in the creation of summative assessment. Conclusions are made, and recommendations are offered for further research to build upon the outcomes of this study and to counter some of its limitations.

A copy of the ethics application, approval, information and consent forms, and the final version of the survey can be found in the Appendices. A list of Appendices and the content of each chapter can be found in the Table of Contents.

## **1.10. Summary**

Chapter 1 has provided the background, context, and motivation for the study. An overview of the research problem and research questions was then presented. The chapter concluded with an overview of the structure of the remainder of the thesis, including the focus of each of the four papers submitted for publication. Extant literature surrounding the topic of study, as well as Paper 1 will be explored in Chapter 2.

## CHAPTER 2: LITERATURE REVIEW

### 2.1. Introduction

The following literature review provides the theoretical basis for this study. As this thesis has been designed as a collection of articles intended for publication, it was essential to curate each article to function as both a standalone paper and as an integral part of the overall research project. Therefore, some aspects of the review of the literature have not been explored in full within this chapter. Rather, specific sections relevant to a particular paper were comprehensively described within that paper. For example, the knowledge and skills required for competence in summative assessment creation, as well as the alignment of opportunity to Kolb's experiential learning cycle (1984), have been elaborated on in Paper 3, and the expectations of competence at graduation have been discussed in more detail in Paper 4.

When considering the research problem and then considering how to respond, it was determined that four areas of literature needed to be explored. First, an answer to the fundamental question of "What is effective summative assessment?" was essential. When delving into this topic, I found that there was not, in fact, a universal consensus as to the definition of effective teacher-created summative assessment. This led to the first of four papers in this thesis by publication—a systematic literature review entitled *Quality indicators of effective teacher-created summative assessment* (see Chapter 2.2.2). The second theme examined in the literature review was how ITE programs address the teaching of assessment within the degree and the skills with which graduates enter the profession. This led to the third theme, which focused on the competence (knowledge, skills, and attributes) of early career teachers and how this can be developed within the early years of their practice. Finally, informed by the previous

three themes, I delved into the professional development opportunities accessible to teachers in their early years of practice to improve their assessment practices.

## **2.2. Principles of Effective Teacher-Created Summative Assessment**

### ***2.2.1 Introduction and Background to Paper 1***

At the outset of this study, I assumed that a universal, common definition existed for effective teacher-created summative assessment, serving as a baseline upon which to build my research exploring the views and experiences of early career teachers in this area of their career. Surprisingly, my engagement with the research literature revealed this assumption to be unfounded. The absence of a definitive determination of what constitutes effective summative assessment posed a challenge in articulating whether early career teachers, in fact, needed improvement.

While the existing literature included statements such as “good assessment needs...” or “relies on summative assessment being of high quality”, the assumption that all readers would define “good” assessment in the same way as the authors is problematic. Additionally, some articles used different terms, such as “valid assessment” or “reliable assessment”, to describe “good” or “quality” assessment. Rather than explicitly stating that “valid” and “reliable” were positive attributes, the reader had to surmise this from surrounding paragraphs. Cookson asserts that “operating without a concrete understanding of key terms when conducting or reporting research can hamper or even reverse pedagogic progress” (Cookson, 2018, p. 934). Brown is more emphatic, stating “it is critical that conceptions and the relationships of conceptions are made explicit and visible” (2004, p.303). As such, establishing a rigorous definition became a foundational priority for this research. To address this need, a systematic literature review was deemed necessary.

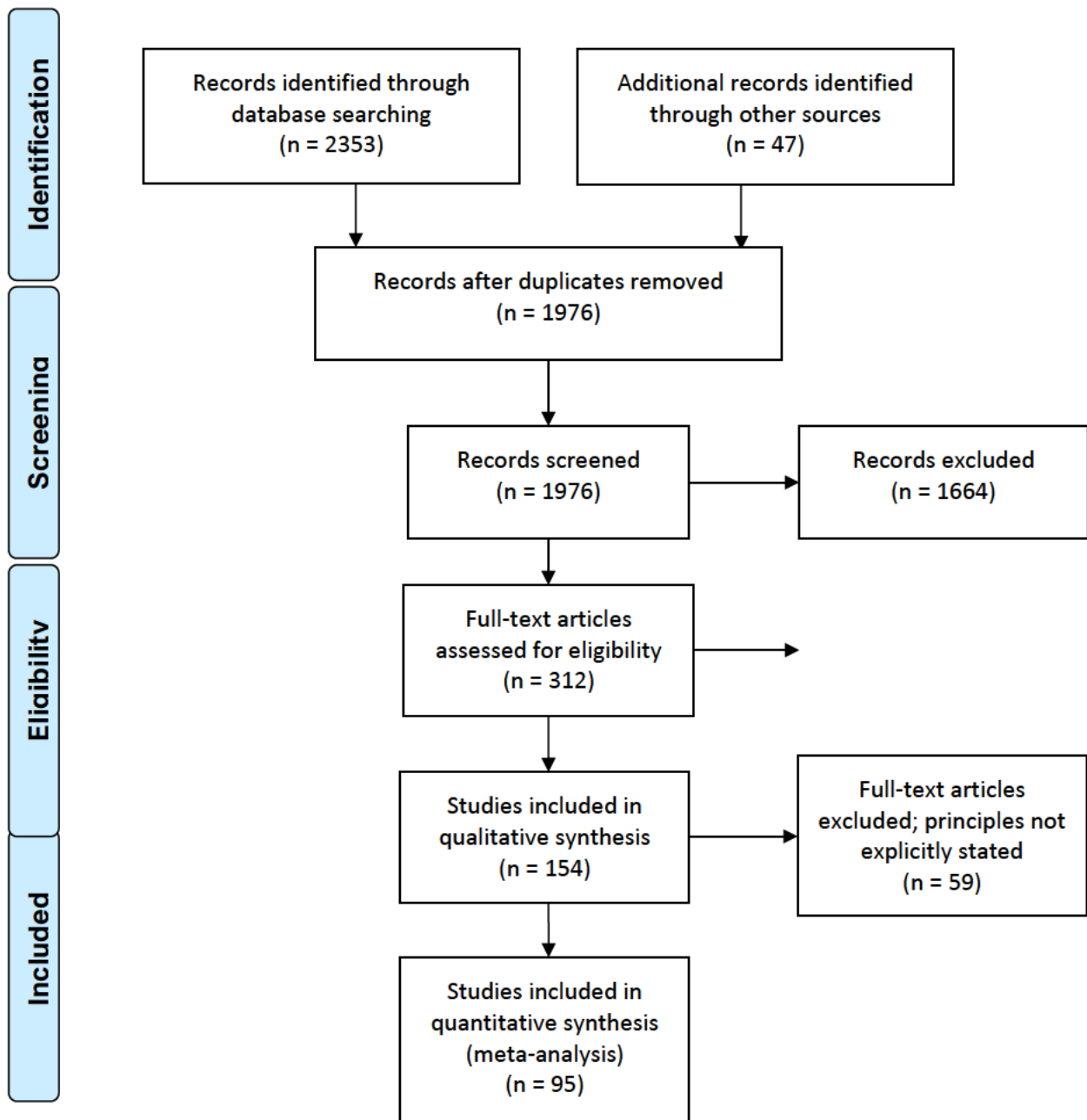
A systematic investigation, analysis, and synthesis of the existing definitions of effective teacher-created summative assessment was required to form a solid basis defining the endpoint of the study. Research into how to improve the effectiveness of a summative assessment item would be limited if the identified end goal was unclear. For a paper presenting an authoritative explanation of what constituted “effective summative assessment creation” to be submitted to an international research journal, particularly as a standalone paper, Fink’s (2005) definition of a systematic literature review needed to be followed. “...a systematic, explicit, [comprehensive], and reproducible method for identifying, evaluating and synthesising the existing body of completed and recorded work produced by researchers, scholars, and practitioners” (pp. 3, 17).

The systematic review protocol was written (see Appendix C) but not published prior to the systematic literature review being initiated, mainly due to most of the protocol repositories available having a science/health focus, and therefore, the protocol for this study did not align. The Preferred Reporting Items for Systematic Review and Meta-Analyses (PRISMA) workflow (Moher et al., 2009) was followed and explained in the paper. The PRISMA flow diagram is shown below (Figure 2.1), and the method of data collection and analysis, including search string, inclusion/exclusion criteria, and stages of analysis were all identified in the paper’s method section. The final 154 articles were recorded by hand on a spreadsheet to determine emerging themes. This spreadsheet was included as supplementary material along with the paper for transparency and replicability and has also been included in Appendix D.

## **Figure 2.1**



PRISMA 2009 Flow Diagram



Note: Adapted from (Moher et al., 2009)

It was important to me, all the way through my doctoral study, to not only find and present a contribution to knowledge and theory but also look forward to potentially impact practice. Therefore, the intention for this paper was not only to provide a strong, theoretically based definition of the principles of effective teacher-

created summative assessment but to present something that could be practically used by teachers. Therefore, the resultant findings contributed to a set of five quality indicators that could be used by teachers in the decision-making process when planning and designing a new piece of summative assessment (Figure 7.1).

This paper was submitted to *Quality Assurance in Education* on 3 April 2023 (see Appendix E), and feedback was received requesting minor revisions to be made on 27 May. The article was accepted for publication and published on 30 August 2023.

The systematic literature review led to the proposition that indicators of effective teacher-created summative assessment should include the presence of validity, reliability, fairness, authenticity, and flexibility.

### **2.2.2 Published Paper 1**

Brownlie, N., Burke, K., & van der Laan, L. (2023). Quality indicators in effective teacher-created summative assessment, *Quality Assurance in Education*, 4. <https://doi.org/10.1108/QAE-04-2023-0062>

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### **2.2.3 Links and Implications for Paper 1**

As a result of the research in this paper, effective teacher-created summative assessment has been defined as having evidence of validity, reliability, fairness, authenticity, and flexibility. *Quality Indicators of Effective Teacher-Created Summative Assessment* (Paper 1) filled a gap in the extant literature where a universally agreed-upon definition of what constituted an item of effective summative assessment could not be found. From here, the standard to which assessment should be created has been set; however, the research question remains: *what do early career junior secondary teachers in Queensland need (if anything) to become effective summative assessment creators?* Consequently, an exploration of the skills and knowledge with which ITE programs equip teachers to enter the profession was required.

### **2.3. Preparing Pre-service Teachers in Assessment in Queensland ITE Programs**

A vital precursor to the first of the research sub-questions regarding the skills and knowledge early career teachers believed they possessed at graduation regarding the creation and implementation of summative assessment was to investigate the summative assessment training provided to teachers during their ITE program. In Chapter 1 (Section 1.3.4), a brief overview was provided regarding ITE requirements in accordance with the AITSL standards, particularly regarding Standard 5 – *Assess, provide feedback, and report on student learning*. ITE programs are required to prepare students with the skills and knowledge to enter the teaching profession at the Graduate career stage (AITSL, 2011). Two questions then

needed to be asked: what training is provided in ITE, and does the research indicate that the training provided is adequate to enter the profession?

Standard 5 (AITSL, 2011) presents five statements describing the knowledge and skills ensured by ITE programs upon a teacher graduating and entering the profession (often referred to as “being assessment literate” or “assessment literacy” in research). Table 2.1 displays the focus area descriptor and examples of what may be taught in a Queensland ITE to address these APST.

**Table 2.1*****APST Standard 5 and Examples of Associated Skills Taught in ITE***

Focus and descriptor	Examples of skills taught in ITE
<p><i>Standard 5.1 Assess student learning.</i></p> <p>Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative, and summative approaches to assess student learning</p>	<p>Students would be made aware of diagnostic, formative, and summative assessment, the similarities and differences between them, as well as how they are used to inform learning, teaching, and planning.</p>
<p><i>Standard 5.2 Provide feedback to students on their learning.</i></p> <p>Demonstrate an understanding of the purpose of providing timely and appropriate feedback to students about their learning</p>	<p>Informal, formal, verbal, written, and group feedback would be taught, as well as how to determine the most appropriate in different situations. Practically, students may also be taught how to mark assessment, giving appropriate feedback both as an overall summary as well as throughout the assessment process.</p>
<p><i>Standard 5.3 Make consistent and comparable judgements.</i></p> <p>Demonstrate an understanding of moderation and its application to support consistent and comparable judgements of student learning</p>	<p>This may look like practical moderation exercises of marking and moderating an example of student assessment (such as at the University of Southern Queensland [EDC2300, 2023]) or exploring how moderation occurs within a school as well as interschool or in accordance with QCAA.</p>
<p><i>Standard 5.4 Interpret student data.</i></p> <p>Demonstrate the capacity to interpret student assessment data to evaluate student learning and modify teaching practice</p>	<p>This standard particularly looks at how a teacher can use data gathered from all forms of assessment to inform future teaching as well as further understand the needs of the individual students in the class. Standardised tests such as NAPLAN (ACARA, 2023) are taught, along with how to interpret and use the resultant reports for future teaching. Informal and immediate data is also considered, such as body language of students indicating engagement and understanding or confusion (position of body, eye contact, fidgeting). Diagnostic assessment and entry/exit tickets can also give a teacher deeper insight into what needs to be adjusted in their teaching.</p>
<p><i>Standard 5.5 Report on student achievement.</i></p> <p>Demonstrate understanding of a range of strategies for reporting to students and parents/carers and the purpose of keeping accurate and reliable records of student achievement</p>	<p>This teaching in ITE may be in the form of how to craft a report statement to parents/carers for an end-of-semester report card or how to calculate an overall grade for a unit of work. The importance of transparency in the assessment process, including reliability and fairness of marking, determination of a grade, feedback, fairness, and appropriateness of assessment chosen, would all be included as part of this focus area.</p>

*Note.* (AITSL, 2011).

These APST highlight a broad scope, and they do not prescribe specific methods for addressing these elements within the ITE program. Universities in Queensland tend to use a variety of approaches to teach assessment (Wyatt-Smith et al., 2017), including “explicit, integrated and blended assessment education models” (DeLuca et al., 2018, p. 175). For example, some ITE programs teach assessment explicitly, with a course devoted entirely to assessment. These may or may not include a period of embedded professional experience (e.g., University of Southern Queensland, 2023; Queensland University of Technology, 2023). An integrated approach where specific assessment modules are embedded within other courses, such as a curriculum, pedagogy, or teaching area course, have been used at Central Queensland University (2023). Still other ITE programs (such as James Cook University, 2023) integrate Standard 5 as it applies within other courses but do not necessarily have it explicitly signposted in their course specifications (DeLuca et al., 2018). Cowan (2009), in her study of ITE in New Zealand found that when a course was dedicated to assessment and was combined with a period of professional experience in a classroom, this approach was particularly beneficial to pre-service teachers in understanding and developing assessment as they were able to see first hand the links between theory and practice.

Based upon the focus areas and descriptions under Standard 5, it was clear that AITSL regard the understanding, interpreting, and enactment of all forms of assessment as both complex and important aspects of the daily role of the teacher (2011). This was further confirmed and explicitly addressed in the *Teacher Education Ministerial Advisory Board Review of ITE* (Craven et al., 2014), which stated an explicit need for ITE programs to prepare graduate teachers who were “assessment literate” and “classroom ready” (p.36). To be “assessment literate” is to “understand

how to construct, administer, and score reliable assessments and communicate valid interpretations about student learning” (DeLuca & Bellara, 2013, p. 356). It is recognised that the practical scope of assessment is far broader than summative assessment only; however, other forms are deemed to be outside the scope of this study. Although the ability to *create* assessment, whether summative, formative, or diagnostic, is not a requirement upon graduation from an ITE program according to AITSL graduate standard 5.1, it is clear the profession believes this ability to be an essential skill upon entry to the profession (Craven et al., 2014; Schneider & Bodensohn, 2017; Wyatt-Smith et al., 2017). However, it is not only the profession overseeing ITE that are concerned with the assessment literacy of graduate teachers.

Researchers in ITE and early career teaching state the assessment literacy of graduate teachers is not adequate (DeLuca et al., 2016; Koh et al., 2012; Schneider & Bodensohn, 2017; Wyatt-Smith et al., 2017; Xu & Brown, 2016). In Craven and colleagues’ 2014 report, the expertise of beginning teachers according to different stakeholders was clearly presented. An advisory group of government employers from Queensland identified “a significant gap between school and system expectations and teacher education provision” (p.30). According to school principals, early career teachers were not adequately prepared in ITE for the practical realities of teaching, particularly in relation to assessment creation (p.30). More disconcertingly, Mayer and colleagues (2015) identified that early career teachers themselves did not feel adequately prepared to engage in assessment creation due to their ITE experiences.

The most concerning misunderstanding of the content and skills expected to be taught in ITE is revealed in two reports to the Australian Government on Initial



Teacher Education after the introduction of the APST. A 2016 report, when considering “effective contemporary teachers” as a result of ITE, stated “they must know how to *design* [emphasis added] and implement assessment that is valid and reliable” (Bahr & Mellor, 2016, p. 35). And again in 2018: “Systems [in ITE] must, therefore, ensure teachers are deeply involved in *developing* [emphasis added] ...assessment at all levels and that assessment is authentic and integrated with teaching and learning” (Gonski et al., 2018, p. 61). Whether this misinterpretation has occurred because of the experiences and, therefore, assumptions of what is included in the APST by researchers, systems, principals, and system experts is unknown. What is clear, however, is there is a significant misalignment of expectations as to the skillset with which a graduate teacher comes to the profession. Given the significant focus on assessment creation within a secondary teacher’s remit, training and continued professional development opportunities after graduation must be readily available to ensure continued and advancing understanding and skills.

#### **2.4. Competence in Summative Assessment Creation**

Wyatt-Smith and colleagues (2017) were clear in their research that the APST were developed based on the underlying assumption that teaching is a profession in which teachers must continue to develop and improve. Given the recognition that many newly graduated teachers do not have the knowledge and skills to create effective summative assessment at the commencement of their career (Craven et al., 2014), it is imperative to consider the literature regarding how teachers can develop and grow in competence within the initial years of professional practice. Competence has been broadly defined as the cultivation of relevant knowledge,

skills and attributes required to perform a set task in a work setting (Hines et al., 2017; Roy Schwarz & Wojtczak, 2002). Competence is further said to be achieved when an individual's knowledge, skills and attributes align with the requirements of a specific task (Boyatzis & Saatchioglu, 2008). According to AITSL and ITE accreditation requirements (2022), it is acknowledged that a teacher, upon graduation, has the requisite knowledge and skills relating to summative assessment to understand the theoretical principles underlying assessment creation and know how the assessment process works. What they may not know, however, is how to take the curriculum and design an effective summative assessment item to be used with their students, as this skill is only required at the Proficient career stage rather than the Graduate career stage (AITSL, 2011).

Considering summative assessment creation, Brookhart's (2011, p. 3) definition of competence as "the skills and knowledge teachers require to measure and support student learning through assessment" has been widely adopted (DeLuca et al., 2016; Edwards, 2017; QCAA, 2023a). Upon graduation, teachers are expected to swiftly acquire the competence to create effective summative assessment task sheets and rubrics. This is a crucial expectation of their role, aligning with the progression toward the demonstration of Standard 5.1 at Proficient career stage (AITSL, 2011). This standard encompasses not only the interpretation and use of existing assessment but also the design of original assessment.

There is, however, limited guidance available in Queensland for practising teachers on how to create effective summative assessment. The only such publicly available guidance is an example document on the QCAA website (State of Queensland, 2023), a template of a task sheet from which a summative assessment task sheet can be populated (see Appendix F). Similarly, a template for a generic

rubric is also provided by QCAA (Appendix G). However, these templates do not provide any additional understanding as to *why* the task sheets and rubrics are created as they are. The task sheet template identifies what to fill in and very general instruction (“Assessment tasks should be of appropriate scope and scale to provide meaningful, realistic, and challenging opportunities for students” [Task description]) but does not provide additional guidance, such as where an early career teacher may understand what is determined by QCAA as “appropriate scope and scale”.

Similarly, the QCAA rubric template provides a completed generic rubric with appropriate cognitive verbs identified at each achievement level and identifies the “C” standard as aligning with the Achievement Standard of the year-level curriculum. However, no advice is given regarding weighting, interpretation of evidence of the cognitive verbs, or even how to make the rubric specific to the task. Templates such as these may be seen as useful, as teachers need only to “fill in the blanks”. However, for the template to be genuinely beneficial to teachers, a prerequisite is a substantial theoretical understanding of the principles of effective summative assessment to comprehend the “why”. As such, it is concluded that these resources might not necessarily assist an early career teacher with improving either their knowledge or skills in summative assessment creation.

When considering the definition of competence in professional contexts, it is not merely the concepts of knowledge and skills that are essential; attributes were also cited as a necessary concept (Hines et al., 2017; Roy Schwarz & Wojtczak, 2002). The literature on summative assessment creation did not pinpoint a single attribute as the most important or essential factor in cultivating competence. Instead, it highlighted the inclusion of multiple attributes, alongside knowledge and skills, as important contributors. Beliefs about assessment (Herppich et al., 2018; Stiggins,

2004), as well as perceptions of assessment (DeLuca & Johnson, 2017), have been shown to influence how well a teacher can create summative assessment; but the most prolific attribute mentioned in the literature as having a positive effect on a teacher's competence is that of confidence (Looney et al., 2018).

Confidence, in the context of assessment creation, is often written under the term "self-efficacy in assessment" (DeLuca & Klinger, 2010; Mockler, 2011; Xu & Brown, 2016). There are clear overlaps between confidence in assessment creation and self-efficacy in assessment creation. Self-efficacy is a concept explained by Bandura (1997) as an individual's belief in their capacity to begin, persevere, and complete a specific task. It particularly looks at one's belief in their ability to control their motivation, social environment and own behaviour when considering attempting a task. Confidence, however, is a more overarching concept, considering a belief in one's capabilities. It is, therefore, unsurprising that a considerable volume of research into teacher improvement and professional development to increase teacher competence also studies how to increase teacher confidence.

Mockler (2022) explored the importance of professional learning early in a teacher's career to build confidence in their professional judgement and, as a result, contribute to the "renewal and revitalisation" of teachers (p. 176). Guskey and Passaro (1994) asserted that by increasing confidence in teachers, their beliefs in their ability to improve student learning and achievement extend even to unmotivated and "difficult" students. An increase in teacher confidence has also been linked to improved teacher performance (DeLuca et al., 2018; Gumus & Bellibas, 2021; Kyndt et al., 2016).

Literature purports the positive effect of an increase in competence on the resultant summative assessment created (DeLuca et al., 2013, 2016; Schneider &

Bodensohn, 2017). In fact, it has been empirically demonstrated that increasing competence will result in more effective assessment being created (Fan et al., 2011; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014; Volante & Fazio, 2007). Therefore, by increasing competence, knowledge, skills, and confidence all increase—leading to an improvement in effective summative assessment creation. What has not been shown is how an early career teacher is to access this knowledge and how they can improve their skills. Based on existing studies, it is thus evident that opportunities must be made available for this increase in competence to occur.

## **2.5. Opportunities in Summative Assessment Creation for Early Career Teachers**

The third theme of literature was reviewed to determine what (if any) opportunities were available and effective in equipping early career teachers to become more competent and confident in their ability to create and implement effective summative assessment. The importance of professional development was clear. In fact, Zhang and colleagues (2021) explained that it is only when teachers have had the opportunity to engage in intentional learning that they can stimulate “knowledge transformations” within their classrooms. Given the trajectory of the APST was established with the fundamental assumption that learning and skill development are continuous, and continual professional development is an integral aspect of a teacher’s workload (for example, Caldwell & Sutton, 2010; Gonski et al., 2018; Gumus & Bellibas, 2021; Wyatt-Smith et al., 2017), it became imperative to investigate the professional development of early career teachers.

A national (or even state-wide) program for early career teachers to develop the skills and knowledge required to move from the Graduate to Proficient career

stage was sought. Again, literature on such a program was scarce. There was only one professional development initiative explicitly designed for teachers at the Graduate career-stage, aimed at developing proficiency in the 37 APST. In 2016, AITSL developed and released a document: *Graduate to Proficient: Australian guidelines for teacher induction into the profession*. This document proposed a formal program and additional support for graduate teachers. This was termed “teacher induction”, which AITSL proposed should be “extended (usually about two years), embedded in daily practice and emphasise skill development and inquiry into practice” (2016, p. 8). This document identified multiple strategies that were recommended as being effective in developing and inducting a graduate teacher into the profession. These included practice-focused mentoring, leadership contact, networks, and collaboration, targeted professional learning, study of teaching, practical information, and time allocation (p. 8).

Practice-focused mentoring was clearly the focus of the induction program, as it was the only strategy elaborated upon. AITSL identified practice-focused mentoring as: “a structured program; set up by leadership; with a more experienced teacher within the same teaching area; clearly identified goals for each meeting; including observation and feedback on graduate teacher teaching; and a time allocation given by leadership” (p. 10). In theory, this seems like a vital opportunity, clearly aligning with a plethora of research articles promoting the benefits of a mentoring relationship on an early career teacher’s career (e.g., Amitai & Van Houtte, 2022; Caldwell & Sutton, 2010; Gonski et al., 2018; Tschannen-Moran & Hoy, 2007). However, the program came with a significant set of disclaimers (see Figure 2.2).

## Figure 2.2

### *Differences between induction programs*

“It is not expected that all induction programs will be identical:

- Leaders in systems, sectors and local education settings will make decisions about what support is available and what resources are devoted specifically to induction.
- The duration of induction, while proposed as a two-year period, will vary for some teachers and in some situations.
- Local circumstances (e.g. small rural schools, non-school settings, those employed on a casual or part-time basis) will also play a role in shaping what is realistic and likely to be effective.”

*Note.* (AITSL, 2016, p. 3)

This set of statements indicates that schools can implement the program independently, without explicit consistency regarding how, for how long, and according to what standards the program will be delivered. Although it may be assumed the period of induction would last as long as the teacher requires to demonstrate Proficient career stage in all 37 APST, this is not explicitly stated and could thus conclude arbitrarily. Further, given that 34% of teachers in Queensland are on a contract rather than permanent and ongoing employment (AITSL, 2023), the provision of the program to teachers in this category is unclear.

It thus appears that the induction program could be seen as “the gold standard” rather than what every graduate teacher can expect in their first few years of teaching. AITSL designed this program as a response to the Teacher Education Ministerial Advisory Group’s report (Craven et al., 2014), where it was stated:

Comprehensive induction programs are needed to support the transition from graduate teacher to proficient teacher. There is concern that currently, employers and schools are not consistently working together to effectively

support beginning teachers to reach the Proficient level of the Professional Standards in the important early years in the profession. (p.40)

Recommendation 30, in response to this, indicated that: “[AITSL] develop national guidelines for beginning teacher induction that will guide *consistent implementation* [emphasis added] of effective induction programs” (p.45). Recommendation 31 was similarly clear: “School systems and employers provide effective induction for all beginning teachers, including those employed on a short-term or casual basis” (p.45).

It is evident that the recommendations by Craven and colleagues (2014), to this point, have not been followed accurately by either AITSL or in practice. Therefore, it is vital to investigate the actual practices by seeking input directly from early career teachers. Early career teachers cannot receive what they need to improve if their voices and current experiences are not heard.

## **2.6. Summary**

Exploration of the literature on summative assessment creation resulted in the emergence of four themes: preparation of pre-service teachers to create summative assessment, competence of early career teachers, opportunities for early career teachers, and the definition of effective summative assessment. The conclusions of these overarching themes revealed the potential for a conceptual framework through which to guide the conduct my research. Existing research stated:

- 1) Teachers enter the profession ill-equipped with the knowledge and skills to create effective summative assessment (Brookhart, 2011; DeLuca & Klinger, 2010; Looney et al., 2018; Pastore & Andrade, 2019).



- 2) Early career teachers need to improve their knowledge and skills in assessment creation (Andersson et al., 2019; Ekström, 2013; Klug et al., 2018).
- 3) Early career teachers need time and opportunities to practice their assessment creation (DeLuca & Johnson, 2017; Gumus, 2021; Stiggins, 2002).
- 4) Professional development of practising teachers is essential to improving knowledge, skills, and resultant assessment (DeLuca & Johnson, 2017; McChesney & Aldridge, 2019; Popham, 2006).

Based on these key conclusions from my review of the literature, I resolved to investigate my research problem by considering whether it might not be a case of “one or the other”, namely:

- a) improvement of assessment creation is facilitated by improving knowledge, skills, and attributes; *or*
- b) improvement of assessment creation is facilitated by having more opportunities to practice; *or*
- c) improvement will occur after participating in professional development.

Of further consideration was the possibility that the improvement of summative assessment creation may also be more effective with a combination of these proposals. Thus, the development of my conceptual framework (Chapter 3) emerged as a direct outcome of considering the issues identified in the literature within this chapter.

Three distinct factors arose when considering the existing literature surrounding this topic of study: the absence of a clear, universally agreed-upon definition for what constitutes “effective teacher-created summative assessment”; the

competence of the practitioners in creating effective summative assessment, and the available opportunities for their early career development. It is now known that for summative assessment to be effective, it needs to have high levels of validity, reliability, fairness, authenticity, and flexibility. Also, pre-service teachers have been taught the basic skills of interpreting and using summative assessment within their ITE program (Ado, 2013; Cochran-Smith, 2005). It is also clear that early career teachers require opportunities to develop their skills and knowledge of summative assessment to progress to the Proficient career stage, according to the AITSL standards (AITSL, 2011). Links between improving competence have been shown to improve assessment creation (e.g., Fan et al., 2001; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014). Likewise, links between opportunities for development have affected the quality of assessment (e.g., Biesta, 2017; DeLuca & Johnson, 2017; Lovett & Cameron, 2011). However, research that has investigated the intersection of a teacher's competence (combining knowledge, skills, and confidence) and the opportunity to create and implement summative assessment in their early years of practice has not yet been thoroughly undertaken. These gaps in the literature have led to the creation of a conceptual framework, which would go on to guide the study. The conceptual framework is presented and explained in Chapter 3.

## CHAPTER 3: CONCEPTUAL FRAMEWORK

### 3.1. Introduction

The following chapter presents the conceptual framework for this study. In conducting the literature review, distinct themes emerged from summative assessment literature. The importance of improvement was the key concept, with some papers identifying the relationship between developing competence (knowledge, skills, and/or confidence) and improved summative assessment creation (e.g., Fan et al., 2001; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014). Other papers underscored the significance of early career teachers' engagement with professional development or opportunities for creating assessments in the improvement of summative assessment creation (e.g., Biesta, 2017; DeLuca & Johnson, 2017; Lovett & Cameron, 2011). This led to a consideration of whether there could be a correlation between *competence* (called *capacity* in Paper 2) and *opportunity* in enhancing the effectiveness of summative assessment to a greater extent than solely through the improvement of competence *or* opportunity.

Paper 2 was written early in the doctoral study process, at which point I conceptualised *capacity* as the amalgamation of knowledge, skills, and self-efficacy—a key factor in the emerging conceptual framework. At that stage, I also delineated the concept of *opportunity* based on my teaching practice rather than relying on authoritative literature. Since the submission of this paper, my thinking has evolved. These are minor adjustments, but they are crucial for shaping my perspective from this point onward in the thesis write-up.

Two considerations caused me to change the concept of capacity to competence. Firstly, throughout my study, it was important to ensure my definitions were clear and accessible to all readers. Therefore, when contemplating capacity, all

definitions included *the potential for* as a part of capacity. When teachers graduate from their ITE program, it is acknowledged they would have the capacity (potential) to create summative assessment, but this certainly does not mean they possess the knowledge and skills to do this immediately upon graduation. This definition, upon considerable reflection, was rejected in favour of the definition of *competence*—having the knowledge, skills, and attributes required to perform a set task in a work setting (Hines et al., 2017; Roy Schwarz & Wojtczak, 2002). However, the concepts and reasoning behind capacity/competence as a construct in my conceptual framework are still valid.

The second change was updating the word “self-efficacy” to “confidence”. Again, as described in Chapter 2 (Section 2.4), self-efficacy and confidence are similar and, in fact, have often been used interchangeably in the literature. However, on deeper exploration of the research problem and my objectives in this study, I found that confidence, defined as “knowing one can successfully complete a task” (Nolan & Molla, 2017, p.12), emerged as a more suitable concept. I wanted to gauge a general understanding that went beyond the teacher’s confidence in their ability to start, persevere, and complete the task of creating the task sheet and rubric. Instead, I wanted to know how confident they were in all aspects of summative assessment creation—where they desired improvement, if they were willing to create summative assessments given the opportunity, and whether they engaged in reflection (or received feedback) on their assessment and if this influenced any changes to the task or rubric. Again, although the decision was made to change the term mid-way through this study, I believe I was aligning my thinking and writing with the essence of confidence rather than self-efficacy, specifically at the point of submitting Paper 2.

In my exploration of the research literature on the concept of increased opportunity to practice leading to improved results in summative assessment creation, I encountered Kolb's (1984) theory of experiential learning. The cycle of concrete experience, reflective observation, abstract conceptualisation, and active experimentation is closely linked to the concepts I had outlined within the construct of opportunity, with one exception—reflection. This was a clear oversight and one that I had assumed to be part of the process but did not identify in the presented framework in Paper 2.

This paper was submitted to *Teachers and Teaching* on 28 November 2022 (Appendix H). As of the point of submitting this thesis, it had passed the editor's desk and was out for review. When feedback on this paper is received, I will change the terminology to “competence” and “confidence” during the revision process.

### **3.1.1 Submitted Paper 2**

Brownlie, N., van der Laan, L., & Burke, K. (2023). *Improving the effectiveness of teacher-created summative assessment: Conceptualising the link between capacity and opportunity* [Manuscript submitted for publication]. School of Education, University of Southern Queensland.

**Improving the effectiveness of teacher-created summative assessment:  
Conceptualising the link between capacity and opportunity**

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## **Improving the effectiveness of teacher-created summative assessment: Conceptualising the link between capacity and opportunity**

There appears to be a misalignment between what is taught in initial teacher education degrees and the expected skills graduate teachers currently hold within the profession. Skills in summative assessment creation is an example of where such misalignment between expectations and graduate skills has occurred. Linking theoretical understanding with practice of a new skill is recognised as imperative and is especially relevant in developing effective summative assessment. However, the literature has not specifically considered what this may look like and how to operationalise it in practice. This paper proposes a conceptual model for enhancing teacher-created summative assessment based upon findings from a systematic literature review that maps key concepts to principles of assessment creation. The model proposes that increased capacity in assessment design, explicitly linked to increased opportunity for practice and reflection, will result in more effective assessment items being created and implemented. The paper thus opens new lines of enquiry for future research toward enhancing the practice of graduate teachers.

Keywords: summative assessment; beginning teacher; early career teacher; capacity; opportunity

### **Introduction**

Summative assessment (or assessment *of learning*) is a formal piece of work at the culmination of a unit of study which gives an indication of student understanding and is used toward the calculation of an overall achievement level (Brady & Kennedy, 2019). High quality assessment items are imperative as they are also now increasingly used as a form of quantitative data for external organisations to determine the effectiveness of teaching, courses and school performance (Gonski et al., 2018). Of course, summative assessment is not only used for external organisations; it is also (and primarily) used for informing teachers, students and parents of a student's understanding and performance

of a certain topic of study. Within the primary and secondary school systems in some countries, summative assessment is set and administered centrally and externally, whereas in some countries (such as Australia, New Zealand, Scotland, and Wales), this responsibility lies with the classroom teacher. It is therefore vital that all teachers have the opportunity, confidence, and ability to design and implement quality summative assessment items. This is particularly important for newly graduated teachers, as it is generally within the first years of practice that teachers are more likely to explicitly receive feedback on their practice and improve their skills.

The authors' context is in Australia as this is where the authors are based and can authentically reflect on the current educational climate; however, the concepts emerging from this paper might be applied to broader educational contexts where teachers are called on to create summative assessment items.

It is imperative when exploring the capacity of beginning teachers to create effective summative assessment items to first determine whether these skills and knowledge have been taught during an Initial Teacher Education (ITE) program. Understanding the skills and knowledge a graduate teacher in Australia possesses can help to determine how a beginning teacher could be best supported in summative assessment creation within their first years of practice. In Australia, the *Teacher Education Ministerial Advisory Board Review of ITE* (2014) emphasised the need for schools of education to prepare graduate teachers who are 'assessment literate'. Wyatt-Smith and colleagues (2017) explored the degree to which ITE programs were preparing students to be competent in the Australian Institute for Teaching and School Leadership (AITSL) professional standards (2011), particularly regarding assessment. It was found that upon graduation from Australian universities, graduate teachers could interpret and use existing assessment and student data to inform their teaching



(addressing Standard 5.1, see Appendix A) but were not required upon graduation to have the ability to create their own pieces of summative assessment. Some ITE programs may touch on this, but the creation of a summative assessment item would be teaching a skill over and above the requirement of AITSL and could not be guaranteed.

Before 2010 in Australia, most ITE programs included instruction on how to create summative assessment items. In fact, the *Review of Teacher Education and School Induction* stated that the first core skill of a graduate teacher is to ‘*develop* [emphasis added], implement and use assessment’ (Caldwell & Sutton, 2010). However, with the release of the AITSL Standards in 2011, 37 skills were identified as core competencies that all pre-service teachers must demonstrate prior to graduation. This meant ITE degrees needed to be reimagined to align explicitly to these standards to meet their external accreditation requirements. In terms of assessment, the focus moved from *creating* summative assessment for use primarily by the teacher, to *understanding* the importance of assessment for students as feedback for their own improvement. Evidence therefore suggests that the skill of summative assessment creation is less of a focus or even left out of ITE programs completely.

Since the introduction of the AITSL Standards and subsequent required change of foci of ITE programs, it is the belief of principals in schools that pre-service teachers need more training in designing and creating assessment by the time they graduate and commence teaching (Chong et al., 2012; Lin, 2006). Graduate teachers have also indicated this concern (Avargil et al., 2012; Mayer et al., 2015). It thus appears that a contradiction exists between expectations and practice. It is only when a practicing teacher reaches the ‘proficient’ level, according to AITSL Standard 5.1, that they are required to design and create assessment items independently (see Appendix A), which sits at odds with principal expectations according to Chong and colleagues (2012). It is

possible, that since many experienced teachers and principals studied prior to 2011 and therefore received explicit instruction in the creation of summative assessment items in their ITE program, there may be an assumption that assessment development is still taught before graduation.

Pre-service teachers currently, however, are being prepared to *use* assessment items provided for them to provide feedback to students and parents/carers on student achievement. They are also taught to interpret the data provided by the assessment item to inform future teaching (AITSL, 2011).

It would appear principals and beginning teachers are not the only stakeholders to hold differing views on graduate teacher skills and knowledge in assessment creation. The Australian Education Union submission to the Department of Education and Training report stated:

Assessment is an intrinsic element of good teaching practice and should provide teachers, students, and parents with information about the progress and achievements of students. Systems must, therefore, ensure teachers are deeply involved in *developing* [emphasis added] and reviewing curriculum and assessment at all levels and that assessment is authentic and integrated with teaching and learning. (Gonski et al., 2018, p. 61)

Given the significant focus on assessment within a teacher's remit, the focus of this paper is to examine how to increase the effectiveness of summative assessment created by a beginning teacher. A key premise of the paper is that the effectiveness of summative assessment items will be enhanced by increasing both the capacity of beginning teachers (including a theoretical understanding of summative assessment design, the skills to design assessment items and the self-efficacy to create effective

assessment) as well as opportunities to create, implement and receive feedback on summative assessment items.

Linking knowledge, skills and self-efficacy (capacity) with the practice of a new skill (opportunity) to facilitate significant, long-term improvement in said skill is intuitive for most teachers and indeed broader professional practice (Biesta, 2017). However, it appears that the literature has not specifically considered what this may look like and how to operationalise it in a practice context, especially in a busy and constantly changing educational workplace. Therefore, this paper presents a conceptual model which draws from existing research on the importance of increasing the quality of summative assessment and which proposes how to increase the effectiveness of teacher-created summative assessment items within a primary or secondary school context.

#### **Principles of effective teacher-created summative assessment**

Teacher-created summative assessment items are not all created equal. As the intentions of summative assessment are to 'ensure improved learning outcomes for students and provide valid and reliable data for policymakers', students, parents and teachers (Queensland Studies Authority, 2009), it is essential that this data is well-founded and based on procedures and criteria which are comparable within and between schools (Black et al., 2011).

After studying the theoretical underpinnings of what many researchers believe constitutes a piece of effective summative assessment, the findings can be synthesised into five overarching principles which constitute such an assessment item: validity, reliability, fairness, authenticity and flexibility (Brownlie et al., under review). A key proposition of this paper is that a teacher-created summative assessment item can be

considered effective when it is created and implemented with high levels of each of these five principles. These principles, synthesised from the literature, are defined, and briefly explained below. It is important to note that each of these principles exist on a continuum (high to low) as opposed to simply being existent or non-existent in the piece of assessment (McMillan, 2017).

*Validity* in assessment refers to the extent to which the assessment aligns with clear purpose to the curricular objectives (Fives & Barnes, 2020). It is the alignment between the externally set syllabus and the content and weighting of content being assessed (Kivunja, 2015). Importantly, validity in this context refers to the creation of the summative assessment item, rather than the validity of the implementation and administration of assessment. According to Brownlie and colleagues (under review), validity is the most universally agreed-upon principle vital to a piece of summative assessment being deemed effective. It can be surmised from this, the importance of the assessment item having a high level of validity is essential to obtain useful and accurate data on student progress from the item, allowing both teacher decision-making and feedback to the student regarding progress.

*Reliability* can be defined as a measure of the consistency, dependability and accuracy of marking and decision-making in assessment (Woolfolk & Margetts, 2019). Essentially reliability in teacher-created summative assessment is concerned with whether a student would receive the same result if they submitted the same assessment at a different time, if the item was marked by a different marker, or marked alongside a different cohort of students. High levels of reliability are present in an assessment item when there are factors in place to allow objective decision-making to occur, resulting in consistency of marking and a dependable overall judgment of student results (Brownlie et al., under review; Woolfolk & Margetts, 2019).

The principle of *fairness* is particularly focused on ensuring all students have received an equitable opportunity to demonstrate their understanding (Brownlie et al., forthcoming; Fives & Barnes, 2020). It is important to note that this does not mean an *equal* opportunity where all students are treated the same way and must demonstrate their understanding under the same conditions; rather that all students are treated *equitably*. For an assessment item to have a high level of fairness, there must be prior equitable instruction during the teaching phase and an absence of bias inherent in the task itself (Butlin & Maden, 2018). A fair assessment task can only occur when one individual or group of students are not unfairly advantaged or disadvantaged during the teaching and learning process as well as within the conditions of the task.

*Authenticity* in assessment considers the extent to which the assessment item has relevance to a real-life context, as well as whether it demonstrates meaning in the lives of the students undertaking the task (Baird et al., 2017). Authenticity in assessment may look like: a group task requiring collaboration and higher order thinking skills, a task based on a real-life issue, an open-ended task which may have more than one solution or a performance-based task (Gonski et al., 2018; Shepard, 2019). Importantly, authenticity can be subjective and may differ between teacher and student, or even between cohorts. Age, location, culture, socio-economic status, and even current popular culture can all affect the authenticity of a particular assessment task.

Student choice and student voice are the central components of the principle of *flexibility* (Leung, 2007). Flexibility in summative assessment refers to the aspects of a task that may be open to negotiation between student and teacher (Christoforidou et al., 2014). Usually, this would centre around either the topic of focus or the mode of delivery of the assessment piece (Christoforidou et al., 2014). For example, if a task requires the student to demonstrate their recall of multiplication facts, a flexible task

may allow for this to be delivered either in written form or orally. If the task requires a demonstration of persuasive speaking skills, a flexible task may allow the student to choose a topic of interest to persuade their audience. A teacher who prioritises flexibility may also choose to co-construct assessment items with their class, bearing in mind the externally set syllabus directives as a starting point. Ultimately, if a student feels ownership or interest in an assessment item, it has been shown they may show more motivation to produce a higher quality submission, more accurately reflecting their skills and knowledge being assessed (Brownlie et al., under review; Leung, 2007).

The literature has agreed that a piece of teacher-created summative assessment with high degrees of validity, reliability, fairness, authenticity, and flexibility is deemed to be effective (for example, Baird et al., 2017). An item created with these principles in mind would thereby allow for valuable and useful assessment data to be obtained by educators, administrators and ultimately, the student. The challenges of creating an assessment item that has a high degree of alignment with each of these principles is acknowledged, particularly for early career teachers (Avargil et al., 2012). While the above principles provide important foundational and conceptual understanding to underpin effective assessment creation, the enactment of this skill requires more than simply acknowledging or understanding the principles. It is suggested that in creating a summative assessment item, the most significant challenge facing beginning teachers is including and balancing the principles in their practice. This paper seeks to address this challenge by proposing tangible, repeated, long-term support for beginning teachers in the learning of the practical implementation of this knowledge.

#### **Capacity of beginning teachers**

It is widely accepted that having the theoretical knowledge and skills required to successfully complete the tasks required of an occupation is described as being

'competent' (Biesta, 2017; Umrzokova & Pardaeva, 2020). As a significant part of a teacher's role is assessing students (including formative assessment as well as marking and giving feedback on summative assessment), it is imperative that beginning teachers have the requisite knowledge and skills to complete these tasks effectively in order to be regarded as 'competent'. However, as noted above, misalignment appears between what is taught in ITE programs to graduate as a teacher and the expectation of principals and practicing teachers regarding a beginning teacher's capacity in assessment creation.

The misalignment represents a complex interplay between capacity and opportunity. Capacity is understood as a teacher's overall teaching competence in which their self-efficacy to create summative assessment has not yet been realised, as at graduation, they have not had the opportunity to enact this capacity. In fact, one of the main policy directions for practicing teachers from the Organisation for Economic Co-operation and Development (OECD) review of evaluation and assessment in Australia was to 'increase efforts to improve capacity for assessment and evaluation'. It was suggested that this be done through 'skills and capacity building and professional development' (Santiago et al., 2011, p. 25).

Beginning teachers themselves identified a limitation in the extent to which they can develop summative assessment when entering the profession, self-identifying a need for professional development and support in 'methods for assessing student learning and development' (Santiago et al., 2011, p. 61). It is questioned, however, whether it is simply knowledge and skills (competence) that are lacking in beginning teachers' ability to create effective summative assessment, or under-developed self-efficacy in this area. It is therefore proposed that in addition to having the theoretical knowledge and skills required to perform successfully in one's role, a strong self-

efficacy regarding ones' knowledge and skills is essential to determining a beginner teacher's capacity to develop effective summative assessment.

Self-efficacy is more than self-confidence. It is one's self-judgements of ability to initiate, persevere through, and successfully perform specified tasks (Bandura, 1986). It is not only the practical skills of a teacher which have been determined to be of vital importance early in a career. There has been considerable interest in the role self-efficacy plays in performance, particularly in the early years of pedagogical practice (Gumus & Bellibas, 2021; Kleinsasser, 2014). For the purposes of this paper, self-efficacy specifically refers to a teacher's belief in their ability to design, modify, and create summative assessment items as well as to implement the assessment from introduction to students through to the marking, moderation, and feedback of results. Indeed, the self-efficacy of the beginning teacher has been shown as imperative when looking at effectiveness of practice (Gumus & Bellibas, 2021; Levy-Vered & Nasser-Abu Alhija, 2015). Bandura (1997) purports that without a high level of self-efficacy, a person will not perform any task to their full potential, whether they possess the requisite skills and knowledge or not. To increase a person's self-efficacy, a combination of previous successful experiences (mastery experiences), vicariously witnessing success in the task, and verbal persuasion from a trusted party is required (Bandura, 1986; Posnanski, 2002).

The theoretical knowledge and skills of effective summative assessment creation, although vital, relies on the confidence of the teacher in their ability to create, implement, and reflect on an assessment item for the piece to be considered a successful and effective measure of student understanding (DeLuca, LaPointe-McEwan, et al., 2016; Levy-Vered & Nasser-Abu Alhija, 2015). Indeed, Wolfe and colleagues (2007) determined that a teacher's own self-efficacy relating to assessment represents a vital



component when looking to increase capacity. Further, self-efficacy has also been shown to be a key predictive factor in the increase of professional competence (Schneider & Bodensohn, 2017).

It is therefore proposed that the term 'capacity' be deemed to be the combination of competence (theoretical knowledge and skills) and self-efficacy. Assuming a beginning teacher has the appropriate knowledge, skills, and self-efficacy to create and implement summative assessment items, this capacity needs to be practiced to consolidate and strengthen this capacity in becoming effective.

### **Opportunity of beginning teachers**

It is likely that most would agree that for a beginning teacher to see improvement in their own created summative assessment tasks, repeated opportunity to practice would be required. Further, it would be particularly important for beginning teachers to be given opportunities to implement their ITE graduate knowledge within the first few years of practice, while their effective memory is still accessible and knowledge current.

Most opportunities for professional development for practicing teachers occur as one-off, usually externally delivered workshops or online training modules (DeLuca, Valiquette, et al., 2016). While useful to improve theoretical knowledge on a topic, these rarely allow for deep, practice-improving change to occur. Multiple studies determine that an ongoing, collaborative relationship with a more experienced peer within the school is more effective than one-off workshops (Cameron et al., 2013; Gumus & Bellibas, 2021). This personalised support and education based on a relationship of mutual trust has been shown to foster a deeper understanding of teaching responsibilities than can be gained through one-off workshops. Moreover, an ongoing mentoring relationship where skills can be practiced and feedback given have been

shown to result in more refined skills being developed (Gumus & Bellibas, 2021; Koh, 2011), as well as teacher self-efficacy increasing significantly (Gumus & Bellibas, 2021).

The paper not only proposes that it is only opportunity for beginning teachers to create summative assessment items that will lead to those items being more effective. Rather, teachers also need to have opportunities to implement and mark the item, in addition to receiving feedback on the item and its implementation to see an improvement in their summative assessment items occur.

In a recent OECD report on improving quality in clinical skills required in healthcare (OECD, 2019), iterative cycles of feedback from a more senior colleague were shown to be most effective for quality improvement. In fact, the model suggested by the OECD was a long-term partnership between a junior colleague and one more senior. The senior staff member would observe the junior staff member demonstrating a skill on multiple occasions then provide constructive, actionable feedback, with iterative cycles of multimodal feedback.

Using this model, instead of relying upon pre-written assessment items, beginning teachers could be given opportunity to create their own item and receive feedback on the creation of the assessment. Then, the beginning teacher could implement the task with their class, mark the task and have the senior teacher moderate with them. It would also be appropriate for the beginning teacher to self-reflect, particularly on the implementation of the task and overall results, to determine the effectiveness of the task and scaffolding of the task to enhance the learning process.

Critically, a link has been identified between opportunity and increased self-efficacy. Recent studies (Gumus & Bellibas, 2021; Sims & Fletcher-Wood, 2021) suggest that increased self-efficacy may be due to an increased opportunity to practice

specific techniques and receive feedback from supervisors. A sense of accomplishment due to having real world experience (mastery experience) may therefore develop (Elliott et al., 2010). Although this research was looking at opportunity and self-efficacy from the perspective of beginning teacher retention, it is plausible that the link between opportunity and self-efficacy may exist concerning the creation and implementation of summative assessment items also.

### **Linking capacity and opportunity**

Proposed so far in this paper are three concepts stemming from the literature relating to the topic of improving the effectiveness of teacher-created summative assessment items. The first of these concepts is the *capacity* of beginning teachers to create and implement their own summative assessment items, based on their competence (a combination of their theoretical knowledge and skill set) and self-efficacy regarding their ability (Xu & Brown, 2016). *Opportunities* as the second concept, are understood to include those events where beginning teachers not only create and implement summative assessment items, but also receive constructive feedback from a trusted senior colleague (Ado, 2013).

These two concepts have been depicted diagrammatically in Figure 1 below as independent which, when an increase occurs in either or both, lead to an increase in the effectiveness of summative assessment (the resulting concept). It is further proposed that an iterative process combining both opportunity and capacity further enhances the effectiveness of a beginning teacher's summative assessment creation and implementation.

The conceptual model draws upon existing literature and uses this as a starting point. Studies have shown that increasing the theoretical knowledge and skills of

summative assessment creation will lead to an increase in the quality of the assessment item (Laveault, 2016; Ogan-Bekiroglu, 2009). Further, when teacher self-efficacy is strengthened, the quality of the teacher's output is also strengthened (Hopfenbeck, 2018; Levy-Vered & Nasser-Abu Alhija, 2015). As such, it can reasonably be deduced that when the combination of both competence and self-efficacy (to create the concept of capacity) occurs, the quality of the teacher-created summative assessment will also improve. In addition, research has also proven that when a teacher has multiple opportunities to create, implement and receive feedback on their own summative assessment items, the quality of said items will increase (Gumus & Bellibas, 2021; Xu & Brown, 2016).

Figure 1. Conceptual model for the improvement of teacher-created summative assessment items within a school setting.

### **Discussion**

The model goes a step further from the existing literature and research. It is proposed that a preservice teacher will graduate their ITE degree with some theoretical knowledge of quality summative assessment and how to use existing items. During the beginning stage of their career, the beginning teacher is allowed an opportunity to create and implement a summative assessment item under the guidance of a more experienced teacher.

Although seemingly intuitive, the expertise of the experienced teacher is essential to this opportunity. The experienced teacher must be skilled and confident

explicitly in the creation of effective summative assessment – it is not beneficial to simply use an experienced teacher in pedagogy or classroom management, for example. If a beginning teacher is modelling their summative assessment items on examples from someone who is not cognisant of effective summative assessment themselves, improvement in the effectiveness of the items is far less likely to occur. Rather, mistakes and oversights will be repeated. Ensuring the experienced teacher is conversant and confident in their capacity to create effective summative assessment according to the principles, will lead to productive feedback for the beginning teaching with these principles being the focus areas for improvement.

When the beginning teacher is given the opportunity to create and implement their own summative assessment, there must be feedback garnered to guide them in improving their capacity. A minimum of three forms of feedback could be used at this point: advice from the experienced teacher (either written, verbal or both), feedback from the students undertaking the summative assessment item (either informally through classroom conversations, formally by the assessment responses submitted, or both) and self-reflection by the beginning teacher. When afforded the opportunity to create a summative assessment item early in the beginning teacher's practice, it is proposed an increase in self-efficacy will ensue, both through a mastery experience and verbal persuasion from others. Further, the beginning teacher's competence will also increase, leading to an overall increase in capacity.

It is important to note, the process of increasing capacity and opportunity should not be a singular process. To significantly increase the effectiveness of teacher-created summative assessment items, it is proposed that the combination of increasing capacity and opportunity be an iterative process over time. The conceptual model presented in this paper shows that development of skills, knowledge and self-efficacy does not occur

after one opportunity to create a piece of summative assessment. Like all new skills, practice makes progress. With more practice and self-reflection, capacity will increase which should lead to a teacher being more confident to take on more opportunities to create assessment items. By participating in a mentoring/coaching relationship with a trusted experienced colleague, the beginning teacher may have an ongoing professional dialogue on the increasing quality of summative assessment. In time, it is then proposed the beginning teacher be experienced and confident enough to become a mentor of new teachers themselves.

#### **Implications and limitations for future research and practice**

The model proposed at this stage is theoretical in nature. It is intended to inform an exploratory sequential mixed methods study of beginning teachers within Queensland, Australia. The model also serves to inform new lines of enquiry in beginning teacher practice, summative assessment design and professional development.

There are potential limitations to the conceptual model proposed by this paper. The first is primarily that successful enactment of the proposed conceptual model for enhancing teacher-created summative assessment is – as yet – untested. An important direction for future research will therefore be the testing and refinement of the framework (or parts thereof) in a range of contexts. Additionally, a key premise implicit in the model is that an iterative mentoring process drives summative assessment improvement based on increasing the capacity and opportunity for beginning teachers. Further, the mentoring must be undertaken with an experienced teacher who understands and enacts the principles of effective summative assessment.

However, it is also proposed that this model can already begin to inform practice. There is enough evidence to validate that an increase in capacity increases the

effectiveness of a teacher-created summative assessment item to a point. Likewise, there is significant evidence across a range of contexts, that the more opportunity to practice a skill and receive feedback on performance is provided, the more advanced and refined that skill becomes. Therefore, it is entirely feasible to propose that a combination of increased capacity, and an increase in opportunity over time, would lead to an increase in the effectiveness of teacher-created summative assessment items.

It is hoped that this proposed model will inform the development of ITE programs, aligning these programs with the graduate standards, and informing expectations of, and support for, graduate teachers. In particular, the currently identified misalignment between AITSL's graduate standard that requires teachers at the graduate standard to 'use' assessment, and school expectations around teacher ability to 'create' assessment may be addressed and aligned following outcomes from the next phase of this project.

### **Conclusion**

Based on existing research presented in this paper, the authors propose that for teacher-created summative assessment to be truly effective in its purpose, not only do beginning teachers need to increase their theoretical knowledge and skills through professional development, but their self-efficacy needs to be augmented by increasing the opportunities to practice the creation, implementation, and improvement of summative assessment items. Beginning teachers must be provided multiple opportunities to put this capacity into practice and receive feedback. Importantly though, this paper purports that it is an iterative process of increasing capacity and opportunity over time that will lead to a significant increase in the effectiveness of teacher-created summative assessment. Such a process is intended to enhance the likelihood that the assessment

items will increase in their validity, reliability, fairness, authenticity, and flexibility which in turn should increase student motivation and participation.

Ultimately, by increasing the effectiveness of teacher-created summative assessment items, the data provided by these items will be of higher quality and be more useful to the stakeholders for appropriate and relevant decisions to be made for the eventual benefit of students, teachers, schools, and future community.



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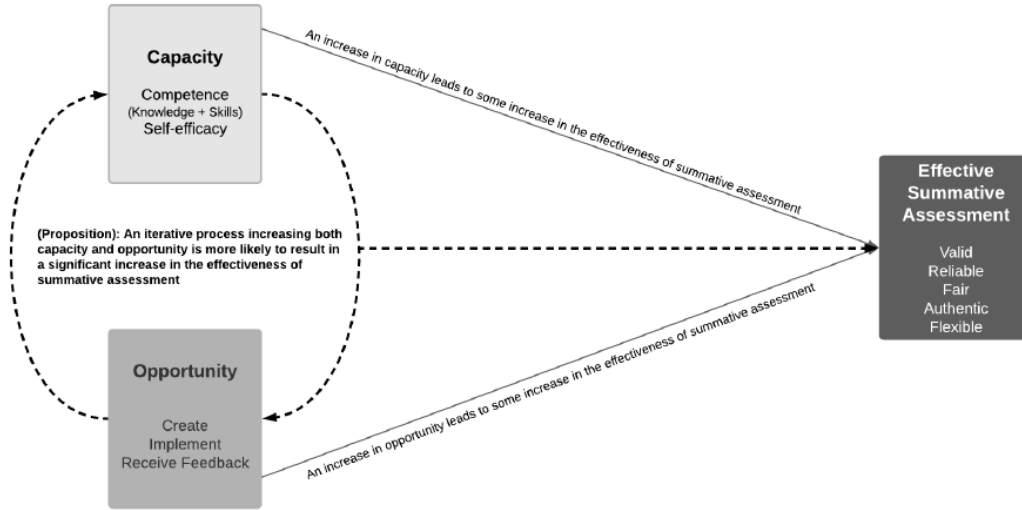
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## Appendix A. AITSL Standard 5.1

Professional practice			
<p><b>5</b> Assess, provide feedback and report on student learning</p>			
<p><b>5.1</b> Assess student learning</p>			
<p><b>Graduate</b> Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.</p>	<p><b>Proficient</b> Develop, select and use informal and formal, diagnostic, formative and summative assessment strategies to assess student learning.</p>	<p><b>Highly Accomplished</b> Develop and apply a comprehensive range of assessment strategies to diagnose learning needs, comply with curriculum requirements and support colleagues to evaluate the effectiveness of their approaches to assessment.</p>	<p><b>Lead</b> Evaluate school assessment policies and strategies to support colleagues with: using assessment data to diagnose learning needs, complying with curriculum, system and/or school assessment requirements and using a range of assessment strategies.</p>

**Figure 1**  
*Conceptual Framework*

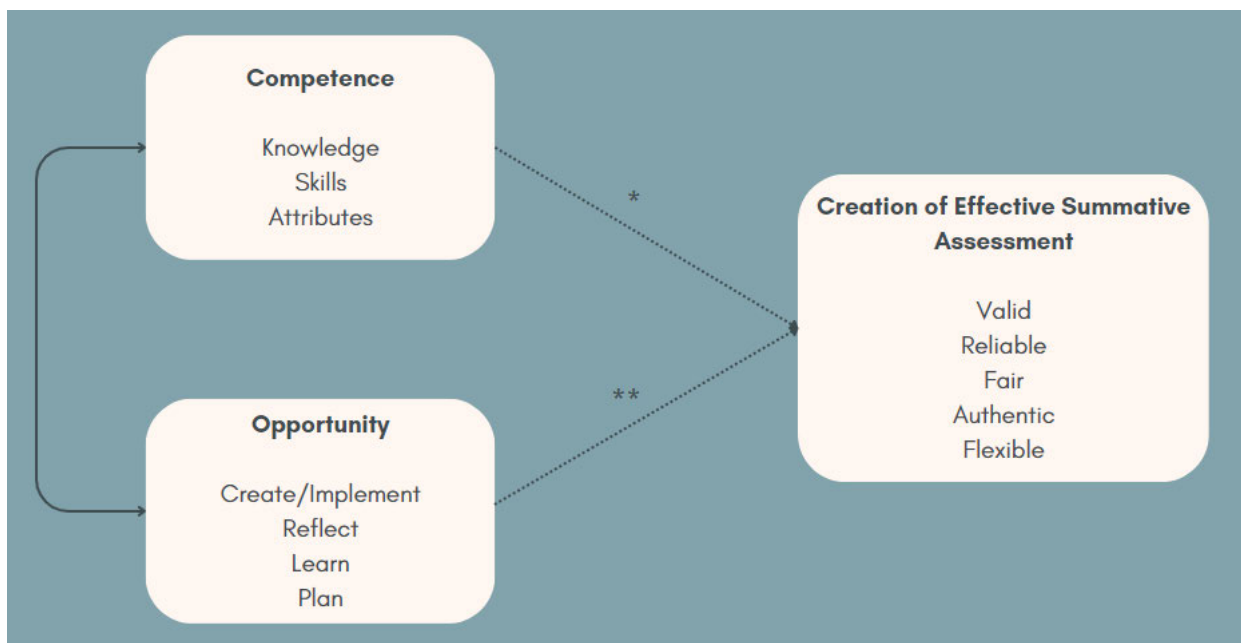


### 3.1.2 Links and Implications for Paper 2

As a result of Paper 2, in addition to the further thinking and reading that occurred after the submission of this paper, a modified conceptual framework has been used for the remainder of this study (Figure 3.1).

**Figure 3.1**

*Conceptual Framework for the Improvement of Effective Teacher-Created Summative Assessment*



*Note.* \*Established in literature: (Fan et al., 2001; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014).

\*\*Established in literature: (Biesta, 2017; DeLuca & Johnson, 2017; Lovett & Cameron, 2011).

It is proposed a *combination* of competence (knowledge, skills, and attributes) and opportunity (through a reflective cycle of create/implement, reflect, learn, and plan [Kolb, 1984]) will result in the summative assessment created being more effective (valid, reliable, fair, authentic, and flexible [Brownlie et al., 2023]). It is through this lens of combining constructs that data were collected and considered. The methodology of the study, including considerations of epistemology, research design, ethical considerations, and method of data collection and analysis, will be explored in detail in Chapter 4.



# CHAPTER 4: METHODOLOGY

## 4.1 Introduction

This chapter describes the research methodology and methods used in this study. It consists of seven sections and begins by grounding the research within a quantitative methodology based on my ontological and epistemological positioning as a researcher (Chapter 4.2). This is followed by an explanation of how the survey was designed (Chapter 4.2), data collection (Chapter 4.3), data analysis (Chapter 4.4), and ethical considerations (Chapter 4.5). It is important to note that Papers 1, 3, and 4 explain the specific methodologies used in relation to the research conducted in those papers; however, this chapter will address the overarching methodological decisions and choices, including those made prior to the data collection and any details which were not able to be included in the submitted papers due to word count.

## 4.2 Theoretical Underpinnings

Creswell and Creswell (2018) define a research paradigm (or “worldview” as they identify it) as “a general philosophical orientation about the world and the nature of research that a researcher brings to a study” (p. 6). Essentially, a research worldview describes how one perceives reality (ontology) and the nature of how one comes to know it (epistemology). Bryman (1988) focuses this definition on what this means for research when explaining a paradigm “dictates how research should be done and how results should be interpreted” (p. 4). Both ontology and epistemology underpin and shape the entirety of the research process. Choices are then made by the researcher regarding how the research question is framed based on their ontological and epistemological beliefs. According to the methodology determined, a

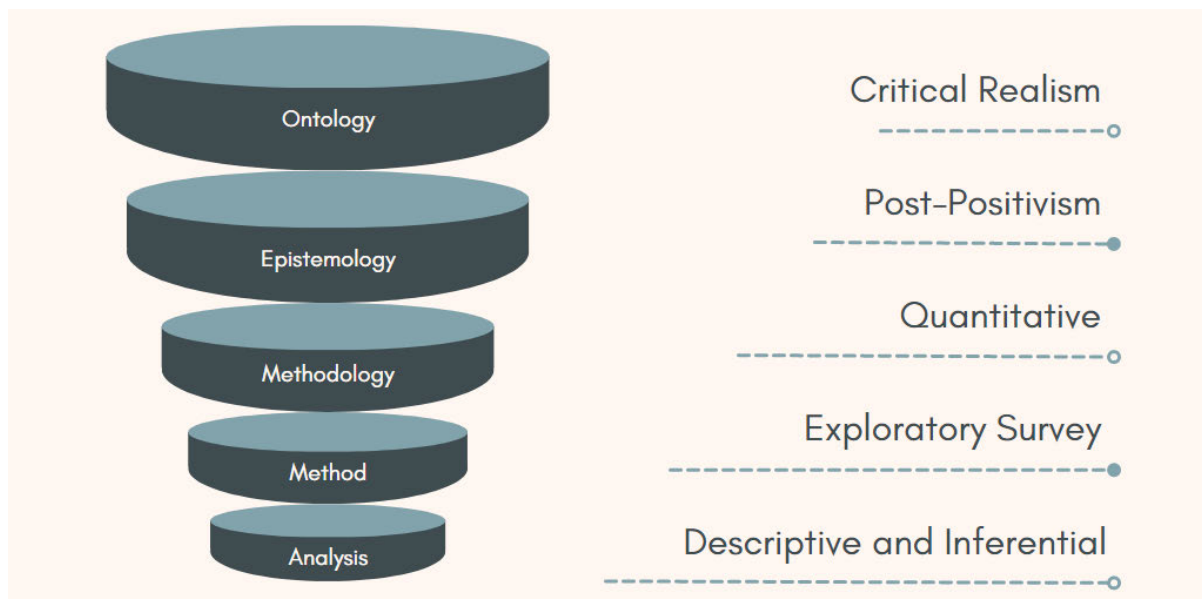
method for collecting data is aligned, and finally, decisions are made regarding the ways that the data will be analysed.

The art of research is as varied as the researcher themselves. Research may be a hypothesis to be proven, a phenomenon to explore, or even a story of what is observed or experienced. However, before any research is chosen or certainly enacted, one must consider the researcher and their innate understanding of knowledge, reality, and truth. For each of the research examples listed in the preceding sentence, it becomes evident that underlying beliefs about reality (ontology), truth (epistemology) and research process (methodology) can vary significantly. For the scientist proving a hypothesis, there is a truth to be found. This truth is absolute and not dependent on people's thoughts and experiences. Therefore, a specific method must be followed to find this truth. Meanwhile, for the researcher wishing to explore a phenomenon occurring in a particular human context they may acknowledge that truth and reality might differ depending on the context of the phenomenon and human experience. Therefore, their research may be to observe and record a different experience to their own, without determining whether one life experience is right or wrong.

An overview of my philosophical beliefs and, therefore, choices made for how I approached this study are presented in Figure 4.1 and will then be explained.

**Figure 4.1**

*Research Methodology Used in This Study*



*Note:* This figure depicts the gradual specificity of research methodology from ontology to data analysis. The choices I have made as a researcher in each of these areas are identified to the right.



Ontology considers the nature of reality (Crotty, 1998). When considering the intended focus of this study (how early career teachers can be assisted to improve the quality of summative assessment they are creating), the reality was acknowledged to exist, whether I, as a researcher, was aware of this reality or not. I do not align with the realist ontological view that there is a single, tangible reality that is measurable, objective, and independent of the researcher's interest in it (Guba & Lincoln, 1994). Teachers' experiences are not identical; however, the reality of this research could not be described as socially constructed either. Summative

assessment must meet certain benchmarks to be considered assessment, considered summative, and considered appropriate or effective. Therefore, in this way, a reality existed in the context of this research focus. However, the opportunities and events each teacher experiences are unique. The reality of each individual's career varies, and the data obtained from surveys may not be entirely objective. Therefore, the concept of critical realism as an ontological perspective resonated with me.

Critical realism resounded with my understanding regarding the nature of reality within the construct of this research. There is a recognition that reality extends beyond merely the observable world (Trochim, 2006). As researchers, one can only know and understand the observable world, yet critical realism recognises the existence of not just an observable world but also a real world that is not always observable by the researcher. In this research project, it was my desire not only to observe and comment on what I could see but also to be able to explain events and outcomes in natural and evolving contexts.

Bhaskar (2014) purports that reality is multi-layered and can only be known to a point (not wholly). When an event changes on one level, a new experience emerges (Archer et al., 2013), and a researcher can only discover reality within a certain realm of probability (Mertens, 2009). Hence, reality can be understood, but it is the product of a set of circumstances culminating at a specific point in time. This view resonated with my views when considering this study. All participants would have the same baseline of education prior to beginning the profession, a similar context (junior secondary) and a similar level of experience. To this end, reality could be identified due to the similarity of the participants' "starting points". However, the "critical" nature of critical realism is enacted when asking about the experiences of

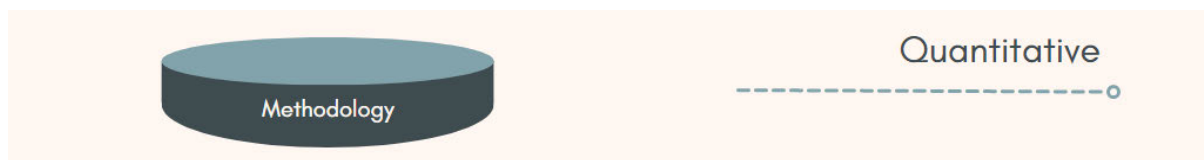
the participants since their graduation. Each teacher's reality will look different due to the events and circumstances occurring post-graduation. However, provided that valid and reliable research is conducted, the insights and experiences of each of the participants can, therefore, be observed and measured with confidence, according to the ontological theory of critical realism (Bhaskar, 2014). Nonetheless, events may be understood and interpreted differently from person to person, based on their own biases and individual experiences, thus potentially having a slightly different reality from another. Taking the stance of a critical realist permits the acknowledgement that observations may involve error, allowing theories to be modified rather than reality being exact and infallible (Trochim, 2006).



Epistemology is concerned with knowledge and how it is obtained and distributed. From a critical realism perspective, knowledge can be gained through analysing the experiences of research participants (Bhaskar, 1998). The epistemological objective of critical realism is to describe and clarify underlying relationships to achieve an explanation of how things work (Lawani, 2021). To achieve this, I adopted a post-positivist epistemological viewpoint. Positivism considers knowledge to be that which can be tested empirically, is objective and therefore independent of the thoughts and beliefs of the researcher (Eichelberger, 1989). Considering my ontological view that reality acknowledges that there is a human (and therefore experience-specific) aspect to scientific research, I believe

that although the positivist view is mostly true, perfect objectivity is not completely achievable; instead, it is approachable (Creswell & Creswell, 2018; Lawani, 2021).

Creswell and Creswell (2018) explain that post-positivists hold a “deterministic philosophy in which causes and relationships determine effects or outcomes” (p. 7). They go on to discuss that knowledge based in post-positivism is based on “careful observation and measurement of the objective reality that exists in the world” (p. 7). In my research, I did not want to simply explore and present a multitude of individual viewpoints of what early career teachers wanted (if anything) to help them improve the effectiveness of their summative assessment creation. I set out to explore whether there were specific factors that may contribute to the desired outcome or whether the factors mentioned by participants were related to each other. This thinking led to considering the methodological approach that would fit me as a researcher and my desired outcomes for the study.



Within the post-positivist paradigm, the purpose of research is to test a theory, find relationships between variables, or observe phenomena. Although I wanted to hear the experiences of early career teachers (which would typically require a qualitative methodology), I also sought to observe the phenomena of early career teachers’ experiences and thoughts on summative assessment creation. I aimed for a “big picture” perspective rather than an in-depth understanding of specific stories that might be less representative of the key issues worth considering. It was important to me to be able to explore potential trends, general strengths,

weaknesses, and needs across a large cohort so that the findings may contribute to actionable strategies addressing these identified needs.

Quantitative research was therefore chosen as an appropriate methodological approach. This approach depends on data that are observed or able to be measured to examine questions about a sample population (Allen, 2017). A quantitative methodology involves collecting data that can be numerically represented, either as actual numbers (such as the size of the school population) or aligned to a scale of agreement with a given statement from 1–5. This numerical data allows for statistical analyses, resulting in aggregated data that reveals relationships (Allen, 2017).

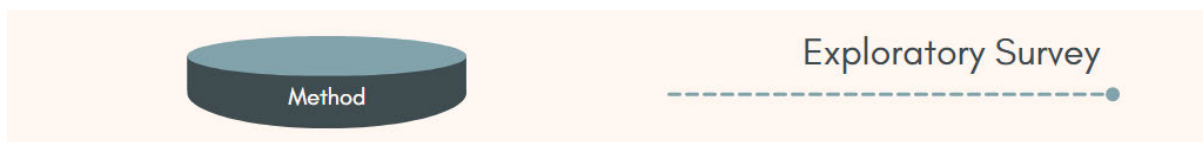
In quantitative research, a problem statement is typically identified with either a hypothesis to be tested or, at a minimum, variables to be explored (Mills & Gay, 2019). In this research, the conceptual framework was not presented as a hypothesis to be proved or disproved; rather, the aim of this study was derived from previous research and practice relating to three variables:

1. the importance of summative assessment being effective,
2. the understanding that increasing competence leads to more effective assessment creation, and
3. increased practice leads to more effective assessment creation.

It therefore stood to reason that a combination of the latter two variables may improve the effectiveness of assessment creation even further.

Research observing an environment which is currently occurring or has already occurred (such as what is currently happening in schools without implementing an intervention) is called nonexperimental or ex post facto research (Hoy & Adams, 2016). This represents research in which “the researcher does not have direct control of the independent variable because the variable has already

occurred” (p. 17). I had no desire (nor could I) to control the assessment creation, the knowledge being imparted, or the opportunities being provided to early career teachers. Rather, I wished to understand early career teacher experiences across as many environments as possible in Queensland to explore whether these variables were related in any way. This understanding is valuable as it provided an opportunity to see “the lay of the land”, with the potential to pave the way for future intervention. However, any intervention to follow would be based on a theoretically and empirically sound base of current practice.



A method for collecting data then needed to be chosen. Firstly, considering I wanted to observe what experiences early career teachers had experienced so far in their career, I was not setting out to prove a hypothesis. Rather, I was taking an inductive approach to this study. Inductive research is used when the research problem and research questions indicate there is a gap in knowledge and practice that needs observation to begin considering how to address the problem (Yin, 2016). When contemplating the research problem and questions for this study, this inductive approach was deemed appropriate. It was only after observing what was happening in practice that a theory or proposal for future action could be created. In this way, the method needed to be exploratory (Creswell & Creswell, 2018).

The method of data collection was then determined, considering key factors such as:

- objectivity, transparency of method, and replicability
- minimisation of researcher bias



- A design capable of capturing the thoughts and experiences of as many early career junior secondary teachers in Queensland as practical
- data collection conducive to statistical analyses
- a snapshot of experiences, knowledge, and opinions of potential participants at this specific point in time since the introduction of senior secondary changes in Queensland (cross-sectional rather than longitudinal)
- a data collection method that appealed to early career teachers, both in terms of the time required to participate and the minimisation of feeling “judged” in their current capacity

A multitude of methods exist within the qualitative research “world”; whereas quantitative methods typically include either experimental or nonexperimental designs (Creswell & Creswell, 2018). An experimental method did not align to the focus or desired result of my study, therefore nonexperimental designs were explored. Survey research is defined as providing “a quantitative description of attitudes or opinions of a population by studying a sample... with the intent of generalising from a sample to a population” (Creswell & Creswell, 2018, p. 13).

Survey research is also described as having systematic, objective, and replicable methods; as well as being created and administered using objective, intersubjective, and replicable procedures (Nardi, 2018). Both explanations confirmed that exploratory survey research would fit the criteria set for this study. As such, it was determined that an online survey, which would be more accessible for early career teachers, especially those in rural and remote Queensland, would be

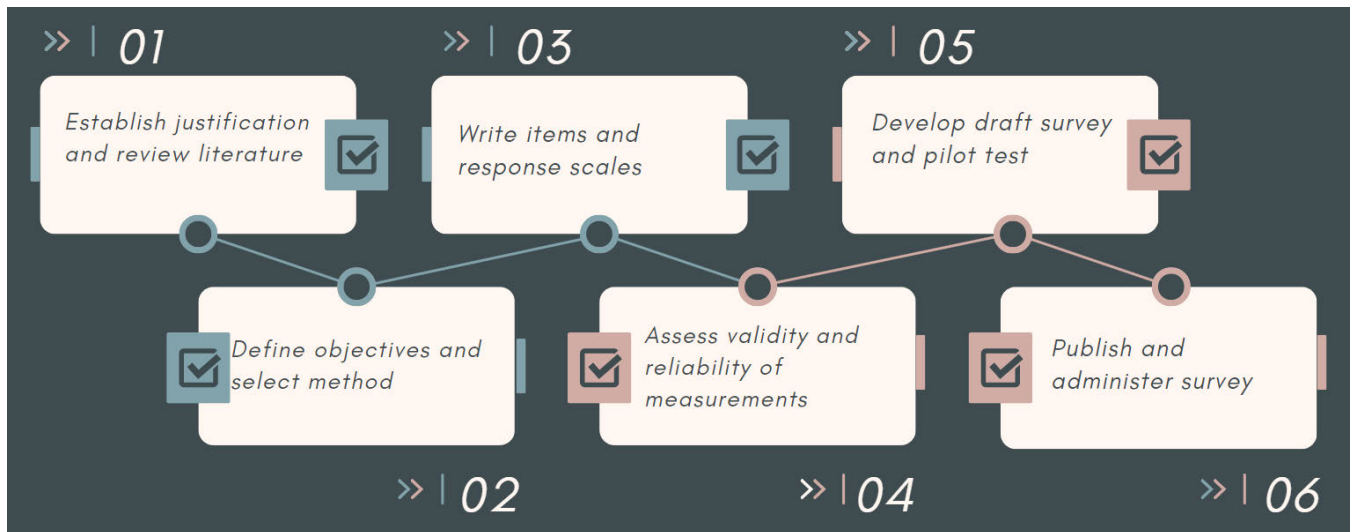
the most suitable method. To encourage candid responses, the survey was designed to be anonymous. This approach ensured that participants could freely express their views without concerns about potential judgment or repercussions from their schools, thereby contributing to the reliability and honesty of the data collected.

### **4.3 Survey Design**

Surveys are used frequently in educational research to “describe attitudes, beliefs, opinions” and other information (McMillan & Schumacher, 2010, p. 22). The primary purpose of this study was to explore the experiences of early career secondary school teachers in relation to the creation of summative assessment, particularly considering their competence, confidence, and opportunity and how these may contribute to the effectiveness of the resultant summative assessment creation. The development of the survey followed the steps set out by McMillan and Schumacher (2010) as shown in Figure 4.2 and then described in detail.

**Figure 4.2**

*Steps in Developing a Survey*



Note: Adapted from (McMillan and Schumacher, 2010, p. 195).

**4.3.1 Justification, Review of Literature and Selection of Method**

The justification for a survey, rather than another method of data collection, was based on a thorough review of the literature as well as alignment to the considerations identified for the research problem. Existing surveys were deemed inappropriate for this study. This was predominantly because this research was investigating a specific gap in the literature and existing surveys were either focussed on externally written and administered summative assessment (Alkharusi et al., 2012), assessment as a whole rather than summative assessment only (DeLuca et al., 2018), assessment during ITE programs (Volante & Fazio, 2007), different sectors (Brown et al., 2011), self-efficacy rather than confidence (Elliott et al., 2010), or very specific contexts which were not transferable (Edwards, 2017).

### **4.3.2 Item Construction and Response Scales.**

Measurement items were developed for this survey for each of the constructs identified in the conceptual framework (Figure 3.1), as well as for each of the research sub-questions. As researchers are not able to edit or change the survey once it is published, the question creation was considered carefully. The following guidelines as recommended by McMillan and Schumacher (2010) were adhered to:

1. *Make items clear:* Each item used unambiguous language to encourage the same easy interpretation by all participants. For example, the initial draft listed a significant number of subject names under teaching areas. Upon reflection, it was decided to simplify the options to align with the learning areas set by ACARA , which is commonly used and understood by all teachers.
2. *Avoid double-barrelled questions:* Items were limited to a single idea, rather than combining two ideas with “and”.
3. *Respondents must be competent to answer:* For items requiring participants to remember what was taught in their ITE program, an “unsure/neither agree nor disagree” option was included to allow for true and honest responses.
4. *Questions should be relevant:* Items considered early career teachers’ experiences, rather than hypothetical items. McMillan and Schumacher (2010) explain if questions are deemed unimportant or uninteresting, participants are more likely to respond expediently, rather than giving careful consideration when answering.
5. *Short, simple items are best:* Instructions for items were short and written in clear and straightforward English. For instance, an original instruction “at this point of your career” was edited to “now” for conciseness.

6. *Avoid negative items:* Avoiding negative terms, such as “no” or “not,” was a deliberate choice to prevent misinterpretation. The only items incorporating these terms were “Can you briefly identify why you have not had the opportunity to create a summative assessment task sheet/rubric?”. Importantly, the response options were carefully crafted to minimise any potential for misinterpretation.
7. *Avoid biased items or terms:* To minimise potential bias when asking teachers about their colleagues, particular roles (Head of Department, Deputy Principal, etc) were mentioned in two items. Participants were specifically asked to identify the title of individuals providing feedback on either task sheet or rubric creation, without an opportunity to judge the *quality* of the feedback. Care was taken to ensure that survey items and terms were free from any potential bias.
8. *Avoid loaded or leading questions:* Two items could have potentially been seen as “loaded” (one that evokes emotion) or “leading” (suggesting a particular response): “I would have liked the opportunity to create a task sheet/rubric since becoming a teacher.” However, the placement of these items was carefully considered. These items were asked immediately after “if you have not created a task sheet/rubric, can you identify why.” All responses to these items allowed the participant to explain why they were yet to create summative assessment, without any blame or responsibility being placed on them (such as “I have not been asked,” “we have used existing rubrics” or “I offered to create one and was declined”). Therefore, when then responding to a potentially loaded or leading item, the pilot testers agreed they did not feel swayed to answer a particular way.

All demographic items were of closed form where participants picked a response from a predetermined list, except for the postcode item. The rest of the questions were a combination of closed form and scale items. Each Likert scale item had five responses including an unsure/neither agree nor disagree/not applicable option. As the survey was to be published and completed online, participants selected their response, with each option listed vertically in a list with the select “button” to the immediate right or left of each option. This minimised confusion relating to identifying the aligned selection button for the chosen option.

Each item in the survey was mandatory, eliminating the possibility of missing responses. Although some participants chose to abandon the survey partway through, the completed survey responses required no calculation of missing values. There was only one item which was not mandatory to answer. This was an open question at the end of the survey asking if the participant had anything else they wished to share about their summative assessment experiences that had not been asked.

Survey items were designed using the conceptual framework (see Figure 3.1) and the research questions as a basis. The list of items is shown in Appendix I. The alignment of the items to both the conceptual framework, research questions and type of required response is shown in Table 4.1.

**Table 4.1***Alignment of Survey Items to the Research Questions and Conceptual Framework*

Research Question	Conceptual Framework Alignment	Item focus	Item numbers	Required Response Type
RQ1: What skills and knowledge did early career teachers believe they possessed at graduation regarding the creation and implementation of summative assessment?	Competence (particularly knowledge and skills)	What sort of focus was placed on assessment in ITE?	16	Choose as many as apply
		What skills and knowledge were taught in ITE?	17-32	Likert 5-point agreement scale
		Do ECT know principles of effective assessment?	43-47	Choose the correct answer
RQ2: What opportunities are available in their current teaching role to create and implement summative assessment?	Opportunity (particularly create/implement and reflect)	Are ECT given the chance to create assessment?	48, 52–53, 55, 59–60	Choose one
			49–51, 54, 56–58, 61	Likert 5-point agreement scale
		Does this have anything to do with the location/size of the school?	1–15	Choose one
		Do they want the opportunity?	54, 61	Likert 5-point agreement scale
RQ3: What is the perception of confidence of early career teachers to create and implement summative assessment?	Competence (particularly the attribute of confidence)	What confidence level do ECT have in different aspects of summative assessment creation? Has this confidence increased since graduation?	33–45, 66–70,	Likert 5-point agreement scale
RQ4: What would early career teachers want (if anything) to improve the effectiveness of their summative assessment creation?	Opportunity (particularly learn and plan)	With which aspects do ECT want assistance?	62–65, 71–73	Likert 5-point agreement scale
		What is the preferred nature of this assistance?	74–82	Choose one
		Do they have access to assistance to improve and is this the form they need/want?		

### **4.3.3 Assessment of the Survey's Validity and Reliability**

Validity in the context of research design looks at whether the instrument (in this case, the survey) collects the data required to answer the research question (Lewin, 2011). Reliability in research design considers the consistency or “repeatability” of an instrument (Creswell & Creswell, 2018, p. 154). Therefore, the next step of creating the survey was to assess its validity and reliability. The types of validity considered for this study were content, concurrent and construct validity (Creswell & Creswell, 2018). Reliability was considered in terms of the survey’s internal consistency, or the degree to which sets of items behave in the same way. Cronbach’s alpha ( $\alpha$ ) value was calculated for this survey.

Content validity, like in summative assessment creation (Brownlie et al., 2023), looks at whether the items measure the content they were intended to measure. Construct validity examines whether the items measure the concepts proposed (Creswell & Creswell, 2018). The survey items were planned to align to both the research questions, which emerged from the perceived research problem, and the concepts proposed in the conceptual framework. This alignment (presented in Table 4.1) demonstrated a high level of both content and construct validity. Concurrent validity considers whether results would correlate with other results (Creswell & Creswell, 2018). A bivariate correlation analysis was run and considered against the table of critical values for Pearson’s  $r$  (Statistics Solutions, 2023) using a 2-tailed approach at a significance level of 0.01 with degrees of freedom ( $df$ ) equal to 50. For the survey to have high concurrent validity, all or a vast majority of the “total” item needed to be 0.273 or higher. Appendix J shows this, highlighting the only correlations below this value. Therefore, the instrument was deemed to have a high level of concurrent validity.



The reliability of the survey was measured by calculating the Cronbach's alpha ( $\alpha$ ) of the items. A result of between .7 and .9 are considered optimal (Creswell & Creswell, 2018). The survey items returned a Cronbach's alpha result of .903 for the 55 eligible items. Therefore, the items demonstrated above optimal internal consistency. Overall, the validity and reliability for the items proposed and the response options were considered appropriate to begin the survey drafting process.

#### ***4.3.4 Development of Draft Survey and Pilot***

The items were combined and ordered into a draft survey. The survey consisted of seven sections and an introductory cover page. Each section is listed in Table 4.2.

**Table 4.2***Sections and Focus of the Survey, Including Alignment to the Item Numbers*

Section number	Focus of section	Item numbers in each section
1	Demographic and non-identifying personal information	1–15
2	Summative assessment teaching and experiences in ITE program	16–22
3	Identification of knowledge, skills, and preparedness to assess upon graduation	23–32
4	Confidence of knowledge and skills now	33–45, 66–68
5	Identification of the theoretical principles of effective summative assessment	43–47
6	Opportunities to create and implement summative assessment from graduation to now	48–53, 55–60
7	Identification of professional development needs and wants	54, 61–65, 69–82

*Note.* Please see Appendix I for a complete copy of the survey.

The items were ordered in such a way that the flow of the survey made logical sense; questions were asked about ITE training, thoughts of knowledge and skills at graduation, experiences in summative assessment creation up to the point in time of response and desires for the future. It was decided not to create a random order of items. Even though randomising has been purported to minimise the risk of survey fatigue and less dependable responses at the end of the survey (Creswell & Creswell, 2018), it was determined that responses would be more authentic, and the survey would be more logical if the items followed an order.

The draft survey was piloted with six colleagues, who were a mix of school teachers and ITE lecturers. These colleagues considered the item construction against the guidelines (avoiding double-barrelled items, etc.), the time it took to complete, logical flow of items and ease of interpretation. Apart from some very minor wording edits, the survey was deemed ready to publish.

#### **4.3.5 Publish and Administer Survey**

After gaining ethical approval to approach potential participants (see Appendix K), the survey was published and administered online. Online surveys have the benefits of more expedient research, niche targeting, greater cost-effectiveness, and accessibility to a wider potential participant base, leading typically to a greater response rate (Comley & Beaumont, 2011). Demands on a teacher's day are already almost unmanageable (Mockler, 2022), particularly for early career teachers. Not only this, but teachers identify non-teaching workload (administrative tasks) as one of the biggest complaints about their job and is the second highest reason for teachers leaving the profession (Rothman et al., 2018). I was therefore acutely aware of the time I was asking participants to give to assist my study as well as trying to avoid particularly busy times of the school calendar.

Rather than an email invitation sent out during work time that could potentially be seen as "another job to do," I made the choice to recruit participants through social media. I wanted participants to feel relaxed at the time of seeing the invitation, not feel coerced into participating, and experience a sense of agency regarding their decision to share their experience with someone who wanted to listen. When considering which platforms on which to publish, the demographics for the largest consumers were considered. Table 4.3 shows some of the most used social media platforms, along with their largest consumer demographic.

**Table 4.3***Popular Social Media Platforms and the Largest Demographics of Users*

Social media platform	Largest demographic of users	Identified Demographic's percentage of total users worldwide	Australian engagement with platform per month
Facebook	25–34 years	29.9% of 2.963 billion	18.5 million
Instagram	18–24 years	30.8% of 1.35 billion	10 million
Twitter	18–29 years	42% of 237.8 million	5.8 million
LinkedIn	30–39 years	31% of 930 million	6.5 million

*Note.* Social media platforms such as Snapchat, TikTok, Pinterest and YouTube were not considered as an invitation and link could not easily be published.

The age targeted for promotion of the invitation was 23–30, which accounted for 74% of all ITE graduates (AITSL, 2019). Therefore, Facebook, Twitter and LinkedIn were chosen as the main social media platforms for the survey. The survey was constructed and housed with the online survey service, Question Pro. This service allows users to create surveys and stores the data. Responses are coded automatically and are easily imported into SPSS for data analysis.

The ideal time of year to publish a research survey for teachers is a difficult choice to make. I wanted to garner the thoughts and experiences of early career teachers after they had some time in the classroom, but before they achieved Proficient career stage (AITSL, 2011). Therefore, I chose (somewhat controversially) to publish the survey link on social media platforms on Boxing Day (26 December) of 2021. My rationale was that at this time: teachers had finished school for the year at least two weeks prior, Christmas preparations were done, planning for the new school year would not yet have started, and Boxing Day in Queensland tends to be a very relaxed day. It is a day where most are recovering from Christmas, relaxing, and not thinking about work. I noticed an increased number of posts and activity on all three social media platforms chosen in the week between Christmas and New

Year in the two years prior to the release of the survey and surmised I may be able to reach a greater number of potential participants in a relaxed mood if I published at this time.

#### **4.4 Data Collection**

A non-random (rather than random) sample technique was used for this study. A random sample considers the entire population under study and then randomly generates a sample from this entire cohort to participate in the study. A non-random sample collects data from a subgroup of the entire population; however, it is not entirely random. In this case, it was difficult to determine the exact number of teachers who would identify as “early career” in Queensland, or who had completed their ITE program in Queensland. There were too many factors at play to calculate the exact total population (such as part-time, those who had taken time off, etc.). In this case, if the participant fulfilled the inclusion criteria and completed the survey voluntarily, their response was included in the data. It was important to ensure that participants volunteered their experiences honestly, without coercion, and felt agency in their participation.

It was then considered that not only would a non-random sample be appropriate but opting for a purposive convenience sample would be the best way to obtain the most accurate data from participants (Mills & Gay, 2019). A purposive sample is chosen by the researcher with the belief that it is the best choice to adequately represent a given population (Mills & Gay, 2019). In this case, a specific criterion for participants was chosen (see Chapter 4.4.1) with the invitation for the survey posted in specific groups on each of the social media platforms, rather than simply on a general or personal page.

Inclusion and exclusion criteria were set for the study. These are the criteria set to define the parameters of the population being studied in the project. When considering the background of the study, research problem, research aims and questions, as well as the current literature, parameters for the characteristics of those who were going to be invited were clearly defined before collecting data.

#### **4.4.1 Participants**

The survey was designed to garner experiences and thoughts from:

- Teachers who identify themselves as “early career.” This means they are either still on “provisional registration,” on a Permission to Teach<sup>1</sup> registration (QCT,2023), or in their first two years of practice; and
- Teachers who either completed their ITE program in Queensland or who currently teach in Queensland; and
- Teachers who are currently teaching into junior secondary (Years 7–10).

Therefore, anyone who was not currently teaching in a secondary school with a junior secondary class, who had not studied in Queensland, was not trained in Queensland, or was no longer considered to be “early career” was not eligible to participate. By having these inclusion and exclusion criteria, it could be assured that, as much as possible, the sample would be in the same career stage with similar training and using the same curriculum (which requires teacher-created summative assessment to be used).

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<sup>1</sup> a provisional registration given by QCT for those who are still studying their ITE program whilst also teaching in a school.

The survey was published and made open on 26 December 2021 and was left accessible for just over three months. I was advised by my supervision team that as the response rate had been constant with no new complete surveys for three weeks (despite continued promotion), it would be appropriate to close. The survey was closed to new responses on Friday 9 April 2022. Two hundred and fifty-eight people had opened and begun the survey, with 116 completed responses.

## 4.5 Data Analysis



Descriptive and Inferential

All raw data were entered into SPSS Statistics version 29.0.1.0 where values were assigned according to the response options used in Question ProPro. The measure of data (string, numeric, or scale) was checked, as well as a search for missing data undertaken. Any invalid cases were removed (for example a primary school teacher, or one who would not be considered “early career”).

Alongside a descriptive statistical analysis, which included a frequency analysis of the data and a correlation analysis, the primary goal of the analysis was to conduct an Exploratory Factor Analysis (EFA) to identify underlying factors that influence the creation of effective teacher-created summative assessment.

To ensure the parsimony of the data, incomplete cases were deleted, which were cases where the dropout occurred predominantly at the demographic and survey stages, resulting in a final sample size of 116 complete responses out of 258 initial respondents. No missing values were detected during the data screening and analysis process, as the questions were designed to require a response. The data was checked for normal distribution using skewness and kurtosis statistics, as well as probability (P-P) plots. Upon analysis, the results demonstrated no significant deviations from normality, thereby providing a strong basis for further analyses. From this finalised data set, frequencies were generated to provide an initial overview of the data (see Appendix L).

An EFA was conducted as a dimension reduction technique using the Kaiser-Meyer-Olkin (KMO) and Bartlett's test of sphericity for sampling adequacy. The EFA adopted a Maximum Likelihood Estimation method with Oblimin rotation and Kaiser



Normalization. Oblimin rotation was selected because it was anticipated that the resultant factors would have some degree of correlation.

#### **4.6 Ethical Considerations**

This study invited Queensland early career secondary school teachers to share their perspectives regarding experiences of summative assessment creation. Any investigation involving people necessitates respectful and ethical data collection methods being employed (Creswell & Creswell, 2018). The University of Southern Queensland (UniSQ) Ethics Committee granted Human Ethics approval under reference number H19REA020 (see Appendix K) before the survey was distributed.

In line with Section 4.2.5 of this chapter, the survey adhered to UniSQ's Human Research Ethics Committee guidelines before dissemination and data collection. Participants were provided with information on the landing page of the survey to explain and ensure informed consent, with a clear emphasis on their right to withdraw from participation during the survey by simply exiting the survey without completing. To ensure anonymity and minimise indirect identification risks through response combinations, participants were not asked to provide the name of their school. Postcodes were collected to ensure data was collected from Queensland. Question Pro was used for deploying and storing responses, ensuring participant anonymity, and safeguarding their responses.

This data was then imported into SPSS to be analysed with all primary data stored according to the *National Statement on Ethical Conduct in Human Research* (2007 – updated 2018). The participant information sheet attached to the landing page of the survey can be found in Appendix M and the front matter, including consent is shown in Appendix N.

## **4.7 Summary**

This chapter has outlined the research process undertaken, beginning with an exploration of my underlying beliefs about truth, knowledge, and research, demonstrating how these beliefs logically led to the chosen research method. The decisions related to data collection, participant recruitment, and measures to ensure ethical gathering, use and storage of data have been explained and justified. Chapters 5 and 6 present the results from this data collection in the form of two submitted papers reporting on two distinct aspects of the data, all responding to separate aspects of the research question.

## CHAPTER 5: EXPLORATORY FACTOR ANALYSIS

### 5.1 Introduction

The following chapter contains the first of two papers that present results of the study. Paper 3, titled *Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation*, follows the research journey from the conceptual framework proposed in Paper 2. Steps towards answering the primary research question of *What do early career junior secondary teachers in Queensland need (if anything) to become effective summative assessment creators?* are made within Paper 3.

This exploratory study sought to initiate a preliminary empirical investigation that would validate, reject, or refine the conceptual model previously proposed, which was derived from the literature (see Figure 3.1). The purpose of an exploratory study was to examine whether there were factors underpinning the creation of effective summative assessment that would assist early career teachers as they navigate the expectations of competence from the profession. The analyses utilised quantitative data from a sample of 116 early career teachers. An Exploratory Factor Analysis (EFA) was conducted which revealed a well-fitting model with a statistically significant three-factor solution consisting of Competence, Opportunity, and Confidence, all associated with the creation of effective summative assessment. The findings provide initial empirical support for the model opening future lines of enquiry that may have implications for supporting early career teachers' assessment practice.

The conclusions presented in *Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation* present two propositions for future research:

1. Competence, Opportunity and Confidence are positively related to the creation of effective summative assessment
2. An iterative cycle of interactions between Competence, Opportunity and Confidence is likely to lead to improved performance in creating effective summative assessment.

This paper was submitted to Australian Educational Review on 12 September 2023 (see Appendix O). At the point of submitting this thesis, it had undergone editorial review and was in the process of blind peer review.

## **5.2 Submitted Paper 3**

Brownlie, N., & van der Laan, L. (2023). *Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation* [Manuscript submitted for publication]. School of Education, University of Southern Queensland.

**The Australian Educational Researcher**  
**Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation**  
 --Manuscript Draft--

<b>Manuscript Number:</b>	
<b>Full Title:</b>	Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation
<b>Article Type:</b>	Original Research
<b>Keywords:</b>	early career teacher; summative assessment; exploratory factor analysis; assessment education
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<b>Order of Authors:</b>	Nicole Brownlie Luke van der Laan
<b>Order of Authors Secondary Information:</b>	
<b>Funding Information:</b>	
<b>Abstract:</b>	In Australia, initial teacher education degrees have changed since 2011, no longer requiring teachers to be able to create summative assessment items upon graduation. However, those employing new graduates typically undertook their teacher training before 2011, learning the skills of summative assessment creation before early career employment. Although over ten years have passed since this change, there is still an observed dilemma of expectations as it relates to the creation of summative assessment items by early career teachers while engaging in their professional development. The purpose of this exploratory study was to examine whether there were factors underpinning creating effective summative assessment items that would assist early career teachers as they navigate these expectations. The analyses utilised quantitative data from a sample of 116 early career teachers. An Exploratory Factor Analysis was conducted with the results indicating good model fit and a statistically significant model of a three-factor solution consisting of Competence, Opportunity and Confidence associated with creating effective summative assessment items. The findings provide initial empirical support for the model opening future lines of enquiry that may have implications for early career teachers' assessment practice.

## **Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation**

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### **Abstract**

In Australia, initial teacher education degrees have changed since 2011, no longer requiring teachers to be able to create summative assessment items upon graduation. However, those employing new graduates typically undertook their teacher training before 2011, learning the skills of summative assessment creation before early career employment. Although over ten years have passed since this change, there is still an observed dilemma of expectations as it relates to the creation of summative assessment items by early career teachers while engaging in their professional development. The purpose of this exploratory study was to examine whether there were components underpinning creating effective summative assessment items that would assist early career teachers as they navigate these expectations. The analyses utilised quantitative data from a sample of 101 early career teachers. A Principal Components Analysis was conducted with the results indicating good model fit and a statistically significant model of a three-component solution consisting of competence, opportunity and confidence associated with creating effective summative assessment items. The findings provide initial empirical support for the model opening future lines of enquiry that may have implications for early career teachers' assessment practice.

Keywords: early career teacher; summative assessment; principal components analysis; assessment education

Subject classification codes: 390402, 390306

### **Statements and Declarations**

The authors have no relevant financial or non-financial interests to disclose.

The authors have no competing interests to declare that are relevant to the content of this article.

This study was conducted with informed consent of the participants, under the ethical approval of the University of Southern Queensland's Ethics Committee: H19REA020.

The datasets generated and analysed during the current study are not publicly available due to the fact that they constitute an excerpt of research in progress but are available from the corresponding author on reasonable request.

### **Author Contributions:**

This study is part of Nicole Brownlie's PhD: *Competence, Confidence and Opportunity of Early Career Secondary Teachers to Create Effective Summative Assessment*. Under the supervision and guidance of Associate Professor Luke van der Laan and Dr Katie Burke, the study was conceptualised and designed by Nicole. Material preparation and data collection was performed by Nicole Brownlie. Data analysis was performed by Nicole Brownlie and Luke van der Laan. The first draft of the manuscript was written by Nicole Brownlie and both authors commented on previous versions of the manuscript. Both authors read and approved the final manuscript.

### **Notes on contributors**

**Nicole Brownlie** is a lecturer in Secondary Education at the University of Southern Queensland. She is currently undertaking her PhD investigating the opportunity and capacity of early career teachers to create effective assessment. Her main research interests are the improvement of teacher-created summative assessment as well as social and emotional well-being in secondary school contexts, where she contributes to professional development for Education Services Australia.

**Associate Professor Luke van der Laan** is the Doctor of Professional Studies programme director at the University of Southern Queensland. His research interests include higher degree by research student learning and teaching and mixed methods practice-based research.



## **Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation**

In Australia, initial teacher education degrees have changed since 2011, no longer requiring teachers to be able to create summative assessment items upon graduation. However, those employing new graduates typically undertook their teacher training before 2011, learning the skills of summative assessment creation before early career employment. Although over ten years have passed since this change, there is still an observed dilemma of expectations as it relates to the creation of summative assessment items by early career teachers while engaging in their professional development. The purpose of this exploratory study was to examine whether there were factors underpinning the process of creating effective summative assessment items that would assist early career teachers as they navigate these expectations. The analyses utilised quantitative data from a sample of 116 early career teachers. An Exploratory Factor Analysis was conducted with the results indicating good model fit and a statistically significant model of a three-factor solution consisting of Competence, Opportunity and Confidence associated with creating effective summative assessment items. The findings provide initial empirical support for the model opening future lines of enquiry that may have implications for early career teachers' assessment practice.

**Keywords:** early career teacher; summative assessment; exploratory factor analysis; assessment education

**Subject classification codes:** 390402, 390306

Assessment is one of the most time-consuming responsibilities of a classroom teacher, taking between 30%–50% of their professional time (Al-Nouh et al., 2014; Iqbal et al., 2023). All teachers assess students in one way or another every day to determine their students' current knowledge and understanding and to inform future practice. This assessment may take many forms—such as peer, diagnostic, formal and informal formative and summative assessments. In Australia (as in many other countries), classroom teachers themselves are tasked with creating, implementing, and marking assessment, including the specific focus of this research; summative assessment. The question emerges that given the importance of summative assessment, to what degree can early career teachers be expected to create effective summative assessment in a context where practice and regulation do not align?

Initial teacher education degrees in Australia must be designed to ensure graduate teachers have a specific knowledge and skill set to be registered as teachers. According to the Australian Institute of Teachers and School Leadership (AITSL), one set of knowledge and skills is related to assessment (Standard 5). To be considered a “Graduate” teacher, one must “demonstrate understanding of assessment strategies, understanding of the application of moderation to support consistent and comparable judgements of student learning and demonstrate the capacity to interpret student assessment data” (2011, n.p.). According to the AITSL standards, the competence to create summative assessment is not expected until a teacher reaches the “Proficient” career stage, which requires a portfolio of evidence to be submitted, demonstrating performance at the next career stage (AITSL, 2011).

These standards, however, only came into effect in 2012. As a result of this relatively recent change, it is still the expectation of a majority of the profession

(including principals and more experienced classroom teachers) that graduate teachers have been taught not only how to use and interpret assessment but are also competent to *create* assessment task sheets and rubrics just as they were taught during their own teacher training (Chong et al., 2012; Xu & Brown, 2016). Prior to the AITSL standards coming into effect, most initial teacher education programs included explicit instruction on how to create summative assessment (Queensland College of Teachers, 2006), so the removal of this from initial teacher education programs has sparked concern, even from graduate teachers themselves (Avargil et al., 2012; Mayer et al., 2015).

Early career teachers need to acquire the ability to create summative assessment in the first years of practice before reaching the Proficient career stage (AITSL, 2011). They must therefore become competent in creating summative assessment items early in their career while also “learning the ropes” of all other aspects of the job. However, current literature or practice has not found an agreed process and understanding of acquiring the competence to create effective summative assessment items.

It has been over ten years since the AITSL standards have been implemented. However, the confusion over the skill set with which a graduate teacher begins their profession is still an issue, especially concerning competence in teacher-created summative assessment.

#### *Teacher-created summative assessment*

Summative assessment (or assessment *of* learning) is a formal piece of work conducted at the end of a unit of study to give a final indication of student knowledge, understanding and progress (Brady & Kennedy, 2019). When assessment is designed and administered by the teacher rather than created and managed by an external body, some countries may also term this “classroom assessment for summative purposes”

(Rao & Banerjee, 2023, p.1). Data from summative assessment can inform not just students, their parents, and teachers on the student's progress; but also schools, systems, and wider educational and governmental bodies on trends to direct future policies, procedures, and processes. It is, therefore, imperative that the summative assessment being created is effective to ensure the data gained from these pieces are accurate and a valid reflection of student learning (DeLuca et al., 2021).

An item of summative assessment may take various forms or genres, such as an interview, performance, formal examination, multimodal presentation, blog, traditional essay, scientific report etc. A summative assessment item consists of two key documents created by the teacher and provided to students. The first document, commonly referred to as a "task sheet" in Australian settings, provides instructions on the assessment item, including the required response format, how it relates to the unit taught, submission deadline and response length, and any other relevant instructions. The second document is a "rubric" or "marking criteria", typically presented as a matrix. Identified tasks or requirements of the assessment are usually listed vertically (criteria), with descriptions of differentiated quality of responses listed horizontally. This document succinctly explains what constitutes an excellent response down to a poor response and is designed for both student and teacher use.

Research indicates that an effective item of teacher-created summative assessment should exhibit validity, reliability, fairness, authenticity, and flexibility (Brownlie et al., 2023). Validity is assessing what has been taught. This is demonstrated when there is a clear alignment between the assessment item and the set curriculum (Fives & Barnes, 2020). Reliability refers to consistent judgements while minimising subjectivity (Brookhart, 1997; Imlig & Ender, 2018). Fairness involves equitable prior instruction and the absence of bias for or against a particular student or group of

students (Black, 2012). Authenticity relates to the perceived relevance of the assessment to the student (Baird et al., 2017). Lastly, flexibility allows for student voice and choice within some aspects of the item (Brookhart, 1997). When an assessment item displays these principles, it can be considered “effective” in the most conventional use of the term—something that is successful in achieving its purpose. In this case, the summative assessment item has been created to allow each student to demonstrate their understanding of the subject of study.

### ***Competence in creating effective teacher-created summative assessment***

Competence is the acquisition of relevant knowledge, necessary skills, and attributes required to perform a task in a work setting (Hines et al., 2017; Roy Schwarz & Wojtczak, 2002). The use of the term competence is inductively derived from performance and reflects pre-set conditions of effective job performance (Boyatzis, 2011). The parameters of the task define effective performance. When a person’s knowledge, skills, and attributes match the parameters of a particular “job demand” within the context of the organisational environment, the person is deemed competent (Boyatzis & Saatcioglu, 2008).

More specifically, when defining competence in the teaching profession, particularly focusing on assessment, Brookhart’s (2011, p. 3) definition of competence as “the skills and knowledge teachers require to measure and support student learning through assessment” has been widely adopted (DeLuca et al., 2016; Edwards, 2017; Queensland Curriculum and Assessment Authority [QCAA], 2023). his definition of competence within the context of the AITSL standards is justified, as an early career teacher must work within an organisational context and have the opportunity to practice to be regarded as competent in creating effective summative assessment. It is important

to note that competence does not simply end at the ability to complete a task satisfactorily. Competence may go on to be developed and improved to a “superior performance” standard (Boyatzis, 2011, p.94).

In Australia, AITSL standards set the requirements for competence relating to assessment at entry to the profession to be the knowledge and skills to *understand and use* existing assessment items (AITSL, 2011). Therefore, a graduate teacher should be competent at using and understanding assessment. Some graduates may have the competence to create summative assessment items, depending on what was taught in their initial teacher education degree. However, the literature clearly identifies early career teachers as not competent at creating “quality” (QCAA, 2023; Wiliam, 2008), “successful” (Simpson, 2004), or “effective” (Remesal, 2011) summative assessment. As an early career teacher, then, it is essential to gain the knowledge and skills required to create effective summative assessment items to demonstrate competence at the Proficient career stage (AITSL, 2011).

Examples of the necessary knowledge include understanding the theoretical principles underpinning effective summative assessment: validity, reliability, fairness, authenticity, and flexibility (Brownlie et al., 2023); a thorough understanding and working knowledge of the curriculum (QCAA, 2023); and the techniques, modes and conditions appropriate for the subject and for the abilities of the students (Murchan & Shiel, 2017). Similarly, the skills needed to be competent include the ability to: choose an appropriate form and length of assessment appropriate to the students (QCAA, 2023); create a task that deliberately and accurately aligns with the content taught (Wiggins & McTighe, 2005); interpret the curriculum requirements to create a rubric which allows for reliable and unbiased marking (AITSL, 2011); and make any

adjustments required to either the task or rubric to allow for equitable access to the assessment by all students (AITSL, 2011; QCAA, 2023).

Further, it has been empirically demonstrated that by increasing knowledge and skills to the point of competence in creating assessment (sometimes referred to as assessment literacy in the studies), a resultant increase in the effectiveness of assessment items will occur (Fan et al., 2011; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014; Volante & Fazio, 2007). Therefore, early career teachers must develop their knowledge, skills, and attributes in assessment to reach competence in effective summative assessment creation.

An attribute often mentioned with the knowledge and skills required for competence in the assessment literature is confidence (DeLuca & Johnson, 2017; Lam, 2019). Of note is the point many authors make regarding beginning teachers' lack of knowledge, skills and confidence to assess their students (DeLuca et al., 2016; Laveault, 2016; Panadero et al., 2022). Also mentioned was the importance of building confidence in beginning teachers to result in motivation, resilience and retention (Ewing & Manuel, 2005; Kyndt et al., 2016; Richter et al., 2013). Other attributes, such as beliefs (Herppich et al., 2018) and perceptions (DeLuca & Johnson, 2017), are also mentioned, but not to the same extent as the attribute of confidence.

The attribute of confidence includes trust in one's own ability to: make choices of appropriate content, level of difficulty and format of assessment tasks (QCAA, 2023); teach the topic leading up to the assessment to ensure prior equitable instruction (McMillan, 2017); distinguish between a well- and poorly- constructed assessment item in order to create an item effectively (Wyatt-Smith et al., 2017); as well as confidence in their theoretical understanding of effective assessment (DeLuca & Johnson, 2017).

### *Opportunity to practice assessment creation*

The adage “practice makes perfect” or “practice makes progress” is widely accepted as truth. However, what constitutes “practice” in teacher-created summative assessment should be further clarified. Edwards (2017) notes that summative assessment items become more effective over time through teacher experience. Biesta (2017) concurs, stating that most would agree that one can “only really learn the art of teaching on the job” (p. 19).

Early career teachers may have the opportunity to create summative assessment items due to multiple circumstances, such as; a fit-for-purpose beginning teacher professional learning program at the school or a nurturing line manager who offers the chance to create assessment with support. Alternatively, teachers may find themselves in unsupported environments, such as a graduate being posted to a teaching position in a remote school where they are the only specialist teacher for hundreds of kilometres. It seems, therefore, that opportunities to practice assessment creation may vary greatly, depending on factors such as location, size of the school, the number of other staff teaching in the same teaching areas, school-specific policies and procedures relating to summative assessment or the prevalent expectations of more senior staff.

In the context of opportunity to create summative assessment items, it is important to differentiate between doing a task recurrently and repeating a task in order to improve over time. For the purposes of this study, “opportunity” is understood to include creation and implementation, reflection, learning, and planning ways to improve assessment (Fergusson et al., 2019). The difference is typically known in teaching as “reflective practice” (Biesta, 2017; DeLuca & Johnson, 2017; Lam, 2019).

Opportunity in the context of teacher-created summative assessment is proposed to reflect Kolb’s (1984) experiential learning cycle: 1) Concrete experience. In this



case, it is creating and implementing the task sheet and rubric; 2) Reflective observation. This *reflection* stage may occur either as self-reflection after implementing the assessment item or as a collegial reflection with a more experienced teacher looking over the item, perhaps as a mentor; 3) Abstract conceptualisation. The early career teacher identifies what *has been learnt* from the experience and conceptualises a response; and 4) Active experimentation. The teacher will *plan* the next summative assessment item, incorporating what they have learned.

As with “competence”, the link between increased “opportunity” and increased “effectiveness” of teacher-created summative assessment items has been well established (Biesta, 2017; DeLuca & Johnson, 2017; Lovett & Cameron, 2011; Schoepp & Tezcan-Unal, 2016). Nonetheless, early career teachers continue to face barriers when creating summative assessment items due to the misalignment between regulatory expectations and what is expected in practice. It appears that due to this misalignment, many early career teachers do not get the opportunity to engage in experiential learning as it relates to creating summative assessment and, as such, are unable to enhance their competence therein.

The literature has demonstrated that when knowledge, skills, and attributes to create summative assessment increase in an organisational environment, the effectiveness of it will also increase (Boyatzis, 2011). Once the knowledge, skills and attributes match the level of effectiveness, the teacher can be regarded as competent. Similarly, it has also been shown that an increase in the opportunity to create summative assessment in an organisational context of implementation, feedback, learning and planning through reflection improves the effectiveness of teacher-created summative assessment (Biesta, 2017; DeLuca & Johnson, 2017). However, studies investigating

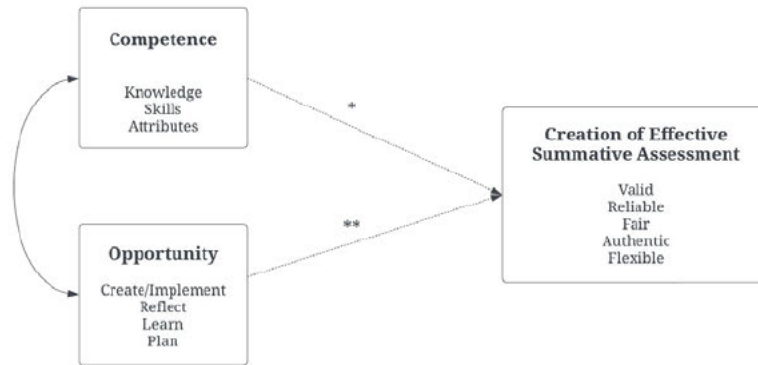
the interaction (if any) between competence and opportunities to create assessment early in one's career appear not to have been conceptualised to develop these constructs.

In order to address this apparent gap, and based on the extant literature, this study proposes a conceptual model depicting the inter-relationship of competence and opportunity as a construct that is positively related to the creation of effective summative assessment. The latter relationships have already been established in the literature and hence are represented as dotted lines (for example Biesta, 2017; Fan et al., 2011; Lovett & Cameron, 2011; Ogan-Bekiroglu & Suzak, 2014). Rather than competence or opportunity alone, it is proposed that an iterative cycle between competence (knowledge, skills, and attributes) and opportunity (to create, reflect, learn and plan) in the context of the organisational environment (school) is necessary to attain the "creation of effective summative assessment".

The study seeks to tentatively determine the internal validity of the construct and, by extension, the model based on a survey of early career teachers. Figure 1 presents the conceptual model adopted by the study.

**Figure 1**

*Proposed Conceptual Model for the Improvement of Effective Teacher-Created Summative Assessment Items*



*Note.* \*Established in literature: (Fan et al., 2001; Mertler, 2009; Ogan=Bekiroglu & Suzak, 2014)

\*\*Established in literature: (Biesta, 2017; DeLuca & Johnson, 2017; Lovett & Cameron, 2011)

Source: authors' own work

***Objective of the study***

The exploratory study sought to initiate a preliminary empirical investigation that would validate, reject, or lead to amendments to the proposed conceptual model derived from the literature. Therefore, the study's objective was to explore whether the constructs associated with competence and opportunity preceding the positive relationships leading to the creation of effective summative assessment in the conceptual model were valid. The study adopted a quantitative approach using an online survey of demographic and

predominantly Likert-type scale questions. The scale items sought to operationalise the independent variables of the conceptual model by measuring early career teachers' level of agreement to statements associated with their knowledge, skills, attributes and experiences related to teacher-created summative assessment.

The online survey gathered data on 1) recollections on what was taught in initial teacher education degrees; 2) identification of summative assessment item creation knowledge and skills at graduation; 3) opportunities since beginning in the profession to create and implement, reflect on, learn from, and plan summative assessment items; and 4) thoughts on current confidence and the potential desire for improvement in assessment in the present. Consequently, the research question guiding this exploratory study was “What are the underlying factors that contribute to effective summative assessment creation by early career teachers, and to what extent do the identification of the independent variables validate the conceptual model of the study?”

## **Method**

### *Participants*

This study collected data from secondary teachers who either studied in Queensland or taught Years 7–10 in Queensland and considered themselves to be an “early career teacher”. AITSL defines an early career teacher as one still classified as in the Graduate career stage and has not yet progressed to the Proficient career stage (2011). Overall, the sample was comprised of 116 Queensland junior secondary teachers (88 identified as female, 26 as male and two who preferred not to disclose) who were in the early phase of their career, teaching in one of their specified teaching areas, either in a metropolitan, regional, or rural/remote school, with typically at least one other teacher in their first subject area. This population was determined to allow the perspectives to

be gained from a group who could be assumed to have similar training in their initial teacher education degree and potentially similar opportunities in teaching within year levels where summative assessment is still teacher-created.

### *Sampling*

A purposive non-random sampling technique was used. Recruitment was by invitation (both directly from the authors and snowballing). Participants were invited to participate voluntarily and anonymously by completing an online survey. Data were collected from December 2021 to March 2022. The survey was administered online with forced responses to ensure complete cases in order to reduce the number of missing values. Ethics approval to gather the data was gained from the University of Southern Queensland Ethics Committee: approval number H19REA020P1.

### *Analysis*

An Exploratory Factor analysis (EFA) was deemed the most appropriate multivariate data analysis technique due to this being an exploratory study and as a robust way to reduce the number of items by identifying the factors that explain the underlying structure and most of the variance created by the items (Hair et al., 2019). Due to the exploratory nature of the study and the limited sample size, findings will be accurate for the population surveyed, but generalisations are not assumed (Field, 2018). An analysis of sampling adequacy using the Kaiser-Mayer-Olkin measure suggests that at 0.864, the study meets the threshold requirements associated with exploratory studies and is described as “meritorious” (Hair et al., 2019, p. 136). Guidelines suggest that an overall measure of sampling adequacy above 0.5 is necessary before proceeding with factor analysis. Indeed, a Bartlett’s test of sphericity was found to be significant at the

$p=0.0001$  level, suggesting that sampling adequacy has been met (Hair et al., 2019) and a factor analysis was therefore appropriate.

A scree plot to identify factors with eigenvalues greater than one and consideration of the theory underpinning the conceptual model was used when considering an initial number of factors to extract. To accommodate the possibility of correlated factors, Oblimin rotation with Kaiser Normalization was employed (Field, 2018).

After the factor analysis was performed, a score was calculated for each factor by obtaining the mean for all items comprising each factor. A reliability analysis producing a Cronbach's alpha value for the scale measurement as well as that of each extracted factor would be calculated post-analysis (Field, 2018).

## **Results**

### ***Cleaning and Screening***

There were 121 completed surveys; however, three cases were deemed invalid as the respondents were not secondary teachers. A further two cases were removed due to incomplete data. No further missing values were detected. As such, there was no need for missing value replacement. Checks for the normal distribution of data (skewness and kurtosis of the data) were undertaken using normal p-p plots and consideration of skewness and kurtosis statistics. It was determined that all items demonstrated a normal distribution of data with no outliers of concern, as displayed in Appendix 1. Skewness and Kurtosis were within -2 and 2, which is considered acceptable. The mean and 5% trimmed mean of each item was very similar (to within 0.3), also indicating limited extreme outliers in the dataset.

### *Participant response*

Table 1 shows of the 116 completed responses, 94.0% currently teach in a Queensland secondary school, and the remaining 6.0% were trained in Queensland before moving interstate to teach. In response to what the participants identified as “early career”, 90.5% had taught for less than five years, and 55.2% of those had taught for a year or less., Most of those who had taught for more than a year had taught part-time for some of this.

**Table 1**

#### *Participant Demographics (N=116)*

	Demographic	Frequency (%)
Gender	Male	22.4
	Female	75.9
	Non-binary	1.7
Age	20-25	35.3
	26-30	19.8
	31-35	11.2
	36-40	12.9
	41+	20.8
Teacher registration status	Not yet registered	2.6
	Provisionally registered	58.6
	Fully registered	38.8
Years of experience	0-1	55.2
	2-3	21.6
	3-4	9.4
	4-5	4.3
	6+	9.5
Location of school	Metropolitan	43.3
	Regional	38.8
	Rural/remote	17.1
Number of students attending the secondary school	<100	3.4
	101-200	5.2
	201-300	4.3
	301-500	6.9
	501-800	22.4
	801-1000	14.7
>1001	43.1	

Looking at the skills of summative assessment taught during their initial teacher education degree, 13.0% of respondents “strongly agreed” that they had been taught to create a new task sheet or rubric during their initial teacher education training, and over 55.0% identified that they had not been taught how to create a task sheet or rubric (see Table 2). In Table 3, it can be seen that when asked about opportunities to create summative assessment, 75.9% of participants had been required to create at least one summative assessment task sheet since graduation and 57.8% had created a summative assessment rubric.

**Table 2**

*Skills Taught in ITE Program (N=116)*

Skills taught in ITE program	Frequency (%)		
	Disagree	Unsure	Agree
Interpret existing summative assessment items	26.7	14.7	58.6
Mark to an existing rubric	27.6	17.2	55.2
Modify an existing task sheet	51.7	15.5	32.8
Modify an existing rubric	56.0	14.7	29.3
Create a new task sheet	37.0	10.3	52.7
Create a new rubric	37.9	12.1	50.0

**Table 3**

*Opportunities for Summative Assessment Creation Since Graduation (N=116)*

Item	Frequency (%)	
	At least once	No
Create task sheet	75.9	24.1
Create rubric	59.4	42.2



*EFA Sampling adequacy.*

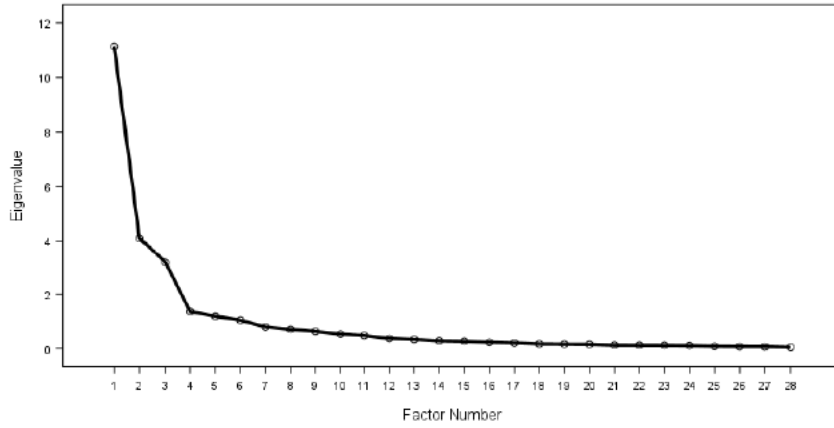
The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was high at .864. The Bartlett Test of Sphericity was significant (Approx. Chi-square = 3094.913,  $df=378$ , and Sig. <.001), indicating that the items of the correlation matrix were correlated and that an EFA was an appropriate approach for analysing the underlying structure of the variables and identifying the factors that explained the most variance (Field, 2018).

*Factor extraction.*

Exploratory principal axis factor analysis revealed the presence of six factors with eigenvalues exceeding 1, explaining 39.76%, 14.64%, 11.31%, 4.8%, 4.237%, and 3.72% of the variance respectively. An inspection of the screeplot (Figure 2) revealed a clear break after the third factor. Using Cattell's (1966) scree test, it was decided to retain three factors for further investigation. This was further supported by the results of Parallel Analysis (Table 4), which showed only three factors with eigenvalues exceeding the corresponding criterion values for a randomly generated data matrix of the same size (34 variables x 116 respondents).

**Figure 2**

*Scree Plot of Factors and Corresponding Eigenvalues*



Source: authors' own work

**Table 4**

*Comparison of Eigenvalues from EFA and Criterion Values from Parallel Analysis*

Factor number	Actual eigenvalue from EFA	Criterion value from parallel analysis	Decision
1	11.132	2.0554	Accept
2	4.100	1.8958	Accept
3	3.166	1.7547	Accept
4	1.353	1.6494	Reject
5	1.186	1.5605	Reject
6	1.042	1.4781	Reject

Note. N=116. Criterion values taken from Watkins, M. W. (2000). MonteCarlo PCA for parallel analysis [computer software]. Ed & Psych Associates.

The three-factor solution explained a total 65.71% of the variance, with Factor 1 contributing 39.76%, Factor 2 contributing 14.64% and Factor 3 contributing 11.31%. To aid in the interpretation of these three factors, Oblimin with Kaiser Normalisation rotation was performed. The rotated solution revealed the presence of simple structure (Thurstone, 1947) with all factors showing a number of strong loadings and all variables loading substantially on only one factor.

A final EFA was carried out on 28 items using the Principal Axis Factoring extraction method. A final model with three factors was extracted using Oblimin with Kaiser Normalisation rotation, taking four iterations to converge and finding a solution with a total variance explained of 65.71%. This is regarded as good for an exploratory study (Hair et al., 2019). Table 5 presents the final Pattern Matrix of the EFA. The item loadings on F1, labelled "Competence", related to skills and knowledge early career teachers have been taught. F2, labelled "Confidence", related to early career teachers' confidence in their ability to undertake tasks, specifically creating and implementing teacher-created summative assessment. Finally, the item loadings on F3, labelled "Opportunity", related to future focussed tasks early career teachers would like to undertake in relation to improving their creation of effective summative assessment.

**Table 5***Exploratory Factor Analysis Pattern Matrix*

Item	Factor		
	1	2	3
At graduation, I could identify a well-constructed rubric	<b>.889</b>	-.040	-.036
At graduation, I could explain why a rubric was well- or poorly constructed	<b>.880</b>	-.044	.000
At graduation, I could make improvements to a poorly constructed rubric	<b>.866</b>	-.036	.026
At graduation, I could identify a well-constructed task sheet	<b>.853</b>	.000	-.003
I was taught how to create new summative assessment rubrics	<b>.795</b>	.040	-.028
At graduation, I could make improvements to a poorly constructed task sheet	<b>.794</b>	-.024	.016
I was taught how to modify existing rubrics to suit my context or individual students	<b>.776</b>	-.020	-.040
At graduation, I could explain why a task sheet was well- or poorly constructed	<b>.775</b>	.067	.065
At graduation, I knew what was necessary to include in a task sheet	<b>.745</b>	.118	.089
I was taught how to create new summative assessment task sheets	<b>.716</b>	.054	-.044
I was taught how to mark according to an existing summative assessment rubric	<b>.688</b>	-.078	-.053
At graduation, I knew what was necessary to include in a rubric	<b>.662</b>	.093	.072
I was taught how to modify existing task sheets to suit my context or individual students	<b>.628</b>	-.034	-.060
I was taught how to interpret existing summative assessment items	<b>.597</b>	.171	-.001
Now, I can explain why a task sheet is well- or poorly constructed	.102	<b>.839</b>	.118
Now, I can make improvements to a poorly constructed task sheet	.048	<b>.835</b>	.132
Now, I can identify a well-constructed task sheet	.126	<b>.822</b>	.138
Now, I know what is necessary to include in a task sheet	.032	<b>.787</b>	.146
Now, I can explain why a rubric is well- or poorly constructed	.233	<b>.745</b>	-.078
Now, I can identify a well-constructed rubric	.201	<b>.739</b>	-.116
Now, I know what is necessary to include in a rubric	.069	<b>.709</b>	-.155
Now, I can make improvements to a poorly constructed rubric	.182	<b>.657</b>	-.127
My confidence in creating summative assessment has improved since graduation	-.120	<b>.570</b>	-.059
My theoretical knowledge of summative assessment has improved since graduation	-.159	<b>.564</b>	-.043
I would like more opportunities to receive feedback on task sheets	.041	-.073	<b>.863</b>
I would like more opportunities to create task sheets	-.110	.092	<b>.833</b>
I would like more opportunities to create rubrics	-.065	.076	<b>.832</b>
I would like more opportunities to receive feedback on rubrics	.091	-.126	<b>.776</b>
Cronbach Alpha of Factors	.952	.925	.899

*Note.* Extraction Method: Exploratory Factor Analysis. Rotation Method: Oblimin with

Kaiser Normalisation. Factor loadings in bold are those over .5

Source: authors' own work

The Factor Transformation Matrix is presented in Table 6. The results indicated that two factors (Competence and Confidence) were moderately correlated at .431. The absence of a meaningful correlation between Competence and Opportunity and Confidence and Opportunity (close to 0) suggested an absence of a linear correlation between these identified principal factors. The moderately correlated Competence/Confidence construct extracted from the analysis indicated it was mutually independent of Opportunity.

**Table 6**

*Factor Correlation Matrix*

Factor		1	2	3
1 (Competence)	Pearson Correlation	1		
	Sig. (2-tailed)			
2 (Confidence)	Pearson Correlation	.431*	1	
	Sig. (2-tailed)	<.001		
Opportunity (3)	Pearson Correlation	-.098	-.090	1
	Sig. (2-tailed)	.300	.338	

*Note.* \*\*correlation is significant at the 0.001 level (2-tailed). N=115

Source: authors' own work

After the factor analysis was performed, a score was calculated for each factor by obtaining the mean, standard deviation and Cronbach's alpha ( $\alpha$ ) for all items comprising each factor (Table 7).

**Table 7**

*Means, Standard Deviations and Reliabilities for each Factor*

Factor	N of items	M	SD	$\alpha$
Competence	14	4.053	.698	.952
Confidence	10	3.206	.928	.925
Opportunity	4	3.713	.811	.899

### *Reliability*

Reliability analysis of the instrument items (28) yielded a Cronbach Alpha of 0.928. This confirmed that the items forming the measurement instrument were internally consistent, with a high level of shared variance explaining the overall variance. Further reliability analyses were conducted on each of the factors and associated items and are listed in Table 1 (Competence  $\alpha=.952$ ; Confidence  $\alpha=.925$ ; and Opportunity  $\alpha=.899$ ).

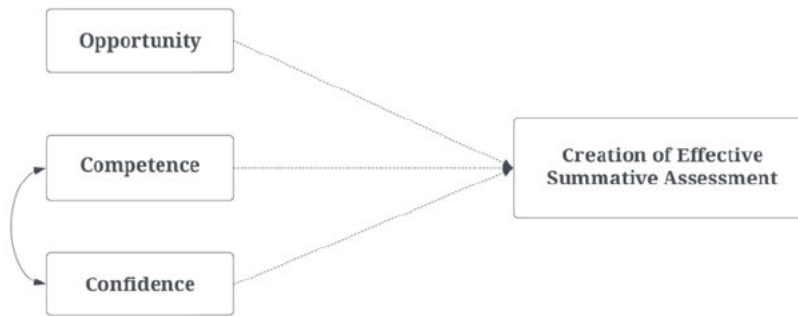
### **Discussion**

The primary purpose of this study was to determine if there was an underlying factor structure related to question items that sought to garner early career secondary teachers' knowledge, skills, attributes, and experiences associated with creating summative assessment. Results from the EFA suggest a three-factor solution rather than the two factors suggested in the conceptual model (Figure 1). The converged solution of the EFA analysis revealed an underlying structure of three factors. These factors have been found in previous studies to be positively related to creating effective summative assessment (Figure 3).

The EFA confirms that the opportunity to create summative assessment (Opportunity) is an independent factor. It also confirms that competence is a factor (Competence). However, a unique finding in the survey results was that confidence in creating summative assessment (Confidence) is a separate, albeit moderately correlated factor, to the Competence factor distinguishing it as a unique factor.

**Figure 3**

*Modified Conceptual Model of Factors Contributing to Effective Teacher-Created Summative Assessment Items*



Source: authors' own work

### *Competence*

The items which rate most strongly in the Competence factor relate to interpreting and adjusting existing task sheets and rubrics at two points in time – during their initial teacher education degree and at the time of graduation from their initial teacher education degree.

Foundational knowledge and skills are integral to the creation of summative assessment task sheets and rubrics. Indeed, it is proposed that Competence, which definitionally includes these, needs to be the foundational factor from which early career teachers can further develop toward creating effective summative assessment items. Without theoretical understanding, the factors of Confidence and Opportunity have nothing upon which to be based. It would therefore be folly to be confident and attempt a task without understanding what the task is and how it works. Theoretical

knowledge is required in the principles of effective summative assessment creation, encompassing high levels of validity, reliability, fairness, authenticity and flexibility (Brownlie et al., 2023). Attendant to this, a grasp of the practical skills required in the creation of a task sheet and rubric must also underpin the concept of teacher-created summative assessment.

The results of the EFA indicate that for teacher-created summative assessment to be improved, factor 1 (Competence) must be improved. This clearly aligns with existing research and literature (Laveault, 2016; Panadero et al., 2022), indicating that teachers' knowledge and skills must be strengthened. Xu and Brown (2016) conceptualised teacher competence in assessment creation in practice. Their framework also began with having a foundational theoretical knowledge base on which to build further skills. Their framework considered assessment improvement through the lens of improvement to knowledge and skills alone. However, the results from this EFA would indicate that knowledge and skills alone are insufficient in improving the creation of effective summative assessment items. The second significant factor of the model is an increase in Confidence.

### *Confidence*

The importance of confidence has been well-documented, especially when beginning one's career (for example, Bandura, 1997; Gumus & Bellibas, 2021; Levy-Vered & Nasser-Abu Alhija, 2015; Pfitzner-Eden, 2016). Wolfe and colleagues (2007) agree and determined that a teacher's confidence relating to assessment represents a vital factor when looking to increase the attendant knowledge and skills associated with competence. The results of the EFA indicate that the factor (Confidence) is orthogonally orientated to Competence and explains the second most significant amount of variance



that is not explained by the Competence factor. Rather, Confidence emerged as a unique factor, albeit moderately related to Competence.

It is proposed from this study that even if an early career teacher has been taught the theoretical skills and knowledge to understand, interpret and use existing assessment (*Items: Now I can identify how to improve a poorly constructed task sheet/rubric, Now I can explain why a task sheet/rubric is well- or poorly constructed, Now I can make improvements to a poorly constructed task sheet/rubric*), confidence in their knowledge and skills are still required in order to be willing to attempt to put these into practice. The results of the EFA indicate that it is not enough to “know what to do”; there needs to be an element of belief in one’s ability to enact the theoretical understanding and skills.

At the outset, the study proposed that increasing competence alone will not allow an early career teacher to create effective summative assessment. Most literature exploring early career teachers’ abilities in creating assessment posit that engaging in professional development to improve their knowledge and understanding of assessment (for example Black et al., 2010; Booth et al., 2014; DeLuca et al., 2016) or increasing their confidence (Levy-Vered & Nasser-Abu Alhija, 2015; Pas et al., 2012; Schneider & Bodensohn, 2017; Wolfe et al., 2007) would result in an improvement in effective summative assessment creation. The EFA results confirm the view that Confidence, as a unique factor, is also associated with creating effective summative assessment. The EFA results also confirm that having the opportunity to practice is essential.

### ***Opportunity***

The third factor identified in this EFA is that of Opportunity. When initially looking into this topic, the conceptual framework proposed an inter-relationship of competence

and opportunity that, in tandem, are positively related to effective summative assessment creation. Opportunity is confirmed to be a factor as proposed, but no statistically significant correlation with Competence or Confidence was established.

The statistical model of the study shows Opportunity to be an independent factor. This does not exclude the proposition that, in practice, an iterative cycle of reflection linking Competence, Confidence and Opportunity will result in synergy as it relates to developing superior performance in creating effective summative assessment items. Future research can investigate this by conducting regression analyses using latent variables.

The predominant theme arising from the items identified in the Opportunity factor is that early career teachers want the opportunity to practice creating summative assessment items. It is encouraging that the evidence points to beginning teachers being eager to engage with summative assessment creation early in their careers, even though the underlying motivation for this desire is unknown. However, the responses garnered showed that early career teachers strongly desire more opportunities to practice summative assessment creation.

Studies in opportunity to practice newly learned skills and knowledge are not as prolific as those looking into acquiring these skills, nor the confidence required to implement them. It is suggested that this may be due to the widespread assumption that “practice makes perfect” or “practice makes progress”. Regarding teachers’ knowledge development, Zhang and Wong acknowledge that “the nature, processes, and effects of the resulting knowledge remains uncertain” (2021, p. 695) and that such assumptions should be tested.

The study results indicate specific opportunities that early career teachers believe would most productively strengthen their teacher-created summative

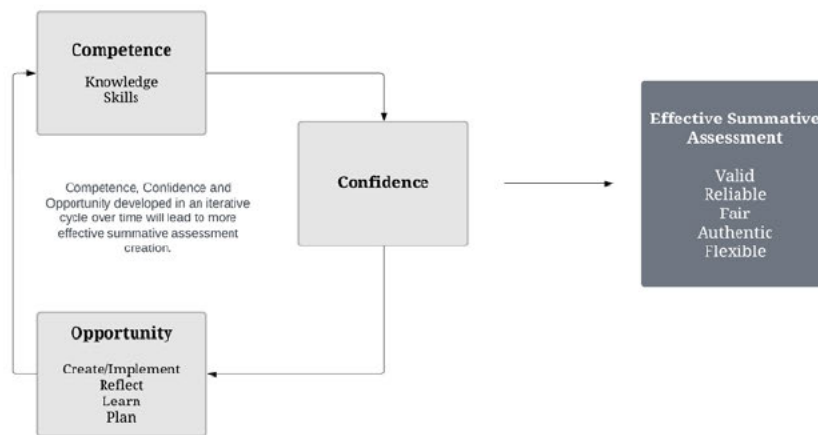
assessment. These include the question items associated with the opportunity to create more task sheets and rubrics and the ability to receive feedback on those items. Of note, practice in interpreting, modifying or explaining the strengths and weaknesses of a piece of summative assessment did not feature in F3 (Opportunity). An explanation for this could include that early career teachers already feel confident in these skills due to learning these in their initial teacher education programs.

The modified model concluded from the EFA results indicate that to achieve effective teacher-created summative assessment items, early career teachers need Competence, Confidence and Opportunity to practice. It is proposed that early career teacher's assessment items are unlikely to improve measurably and permanently as a result of any of the factors in isolation or Opportunity limited to a one-time experience such as ad-hoc formal professional training.

Rather, an iterative process of all three factors working in concert would be most beneficial. By practising one's knowledge and skills, one's confidence will likely increase. Further reflective practice associated with opportunities would continue this cycle and increasingly lead to the creation of better summative assessment items until surpassing the benchmark of being deemed "effective". The practice framework derived from the modified model is presented in Figure 4.

**Figure 4**

*Practice Framework for the Improvement of Teacher-Created Effective Summative Assessment Derived from the Modified Model*



Source: authors' own work

#### **Limitations and conclusion**

The authors acknowledge that there are limitations to this study. Firstly, due to the exploratory nature of the study, it would be erroneous to assume generalisability to all Australian early career secondary teachers. Despite meeting the measure of sampling adequacy thresholds, a larger sample size is necessary for further internal and construct validity. Secondly, the participants understood they were participating in a survey on summative assessment, and as such, a level of self-selection is present. This may suggest an interest or confidence in assessment. Therefore, the voices of those who may be ambivalent or not confident may not be represented. An expanded random sample of the same population (beginning secondary school teachers in Australia) is needed to confirm, amend or reject the findings and address this limitation. Thirdly, as this study was undertaken in Australia, its results cannot be generalised to other jurisdictions or

countries where initial teacher education and expectations of early career teachers may differ. Further, similar studies in other jurisdictions are required to confirm the findings of this study.

This study was exploratory in nature; therefore, causality between the factors is not suggested. Rather, the findings are considered an indication of the internal relationships between the independent variables. The causal relationship between the independent and dependent variables has been established in prior studies. Future studies that adopt confirmatory factor analysis (CFA) and a Structural Equation Modelling approach are needed to validate the modified model and these preliminary findings.

Further research following the line of enquiry adopted by this study is recommended. These may include a document analysis of summative assessment to determine whether early career teachers possess the knowledge and skills they purport to have gained in their initial teacher education. Investigations are required to confirm or amend the proposed model to determine construct validity. Also, practice-based inquiries may seek to determine the extent to which the model aligns with summative assessment practices in secondary schools.

In summary, the findings of this study suggest two propositions:

- 1) Competence, Opportunity and Confidence are positively related to the creation of effective summative assessment.
- 2) An iterative cycle of interactions between Competence, Opportunity and Confidence is likely to result in increasing performance in the creation of effective summative assessment items.

It is suggested that these findings are likely to provide practical steps in resolving the dilemma of expectations associated with early career teacher summative assessment.

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## Appendix 1

### *Assessment of Normality Using Descriptive Statistics of Items*

Item	Mean	5% Trimmed Mean	Std. Deviation	Skewness	Kurtosis	Kolmogorov-Smirnov			Shapiro-Wilk		
						Statistic	df	Sig.	Statistic	df	Sig.
At graduation, I could identify a well-constructed rubric	3.26	3.29	1.143	-.312	-.978	.268	116	<.001	.876	116	<.001
At graduation, I could explain why a rubric was well- or poorly constructed	3.16	3.17	1.177	-.079	-1.16	.238	116	<.001	.880	116	<.001
At graduation, I could identify a well-constructed task sheet	3.55	3.61	1.122	-.696	-.407	.310	116	<.001	.849	116	<.001
At graduation, I could make improvements to a poorly constructed rubric	3.16	3.17	1.147	-.275	-1.018	.261	116	<.001	.878	116	<.001
I was taught how to create new summative assessment rubrics	3.09	3.10	1.309	-.256	-1.223	.257	116	<.001	.874	116	<.001
At graduation, I could explain why a task sheet was well- or poorly constructed	3.36	3.39	1.153	-.297	-1.023	.262	116	<.001	.876	116	<.001
At graduation, I knew what was necessary to include in a task sheet	3.39	3.43	1.193	-.574	-.808	.317	116	<.001	.843	116	<.001
At graduation, I could make improvements to a poorly constructed task sheet	3.48	3.54	1.051	-.755	-.155	.318	116	<.001	.842	116	<.001
I was taught how to modify an existing rubric to suit my context of individual students	2.60	2.56	1.186	.338	-.998	.255	116	<.001	.880	116	<.001
I was taught how to create new summative assessment task sheets	3.14	3.15	1.271	-.315	-1.174	.277	116	<.001	.865	116	<.001
Now, I know what is necessary to include in a rubric	4.01	4.07	.890	-.771	.038	.281	116	<.001	.821	116	<.001
I was taught how to mark according to an existing summative assessment rubric	3.29	3.33	1.237	-.522	-.791	.268	116	<.001	.873	116	<.001

Item	Mean	5% Trimmed Mean	Std. Deviation	Skewness	Kurtosis	Kolmogorov-Smirnov			Shapiro-Wilk		
						Statistic	df	Sig.	Statistic	df	Sig.
I was taught how to interpret existing summative assessment items	3.36	3.40	1.13	-.570	-.656	.300	116	<.001	.858	116	<.001
I was taught how to modify existing task sheets to suit my context or individual students	2.69	2.66	1.219	.208	-1.124	.231	116	<.001	.886	116	<.001
Now, I can identify a well-constructed task sheet	4.19	4.27	.801	-1.183	2.124	.277	116	<.001	.79	116	<.001
Now, I can make improvements to a poorly constructed task sheet	4.15	4.21	.772	-.837	.731	.278	116	<.001	.797	116	<.001
Now, I can explain why a rubric is well- or poorly constructed	3.9	3.94	.981	-.632	-.542	.266	116	<.001	.836	116	<.001
Now, I can identify a well-constructed rubric	4.01	4.07	.918	-.771	-.101	.272	116	<.001	.822	116	<.001
Now, I know what is necessary to include in a task sheet	4.16	4.24	.823	-1.076	1.569	.266	116	<.001	.798	116	<.001
At graduation, I knew what was necessary to include in a rubric	3.36	3.40	1.182	-.386	-.962	.274	116	<.001	.872	116	<.001
Now, I can make improvements to a poorly constructed rubric	3.89	3.93	.949	-.580	-.503	.263	116	<.001	.846	116	<.001
My confidence in creating summative assessment has improved since graduation	3.99	4.07	1.047	-.916	.064	.251	115	<.001	.824	115	<.001
My theoretical knowledge of summative assessment has improved since graduation	4.11	4.20	.980	-1.197	1.043	.271	115	<.001	.788	115	<.001
I would like more opportunities to create task sheets	3.62	3.64	.884	-.635	-.029	.320	115	<.001	.840	115	<.001
I would like more opportunities to create rubrics	3.64	3.69	.919	-.743	.533	.294	115	<.001	.856	115	<.001
I would like more opportunities to receive feedback on rubrics	3.81	3.85	.926	-.619	-.037	.277	115	<.001	.861	115	<.001
I would like more opportunities to receive feedback on task sheets	3.78	3.83	.971	-1.050	1.436	.284	115	<.001	.859	115	<.001
Now, I can explain why a task sheet is well- or poorly constructed	4.12	4.20	.836	-1.050	1.436	.279	116	<.001	.803	116	<.001



## Appendix 2

### *Items Contributing to Each Factor*

Factor	Item
1 (Competence)	<p>I was taught how to interpret existing summative assessment items</p> <p>I was taught how to mark according to an existing summative assessment rubric</p> <p>I was taught how to modify existing task sheets to suit my context or individual students</p> <p>I was taught how to modify existing rubrics to suit my context or individual students</p> <p>I was taught how to create new summative assessment task sheets</p> <p>I was taught how to create new summative assessment rubrics</p> <p>At graduation, I knew what was necessary to include in a task sheet</p> <p>At graduation, I knew what was necessary to include in a rubric</p> <p>At graduation, I could identify a well-constructed task sheet</p> <p>At graduation, I could identify a well-constructed rubric</p> <p>At graduation, I could explain why a task sheet was well- or poorly constructed</p> <p>At graduation, I could explain why a rubric was well- or poorly constructed</p> <p>At graduation, I could make improvements to a poorly constructed task sheet</p> <p>At graduation, I could make improvements to a poorly constructed rubric</p>
2 (Confidence)	<p>Now, I can identify a well-constructed task sheet</p> <p>Now, I can explain why a task sheet is well- or poorly constructed</p> <p>Now, I can make improvements to a poorly constructed task sheet</p> <p>Now, I know what is necessary to include in a task sheet</p> <p>Now, I can explain why a rubric is well- or poorly constructed</p> <p>Now, I know what is necessary to include in a rubric</p> <p>Now, I can identify a well-constructed rubric</p> <p>Now, I can make improvements to a poorly constructed rubric</p> <p>My confidence in creating summative assessment has improved since graduation</p> <p>My theoretical knowledge of summative assessment has improved since graduation</p>
(3) Opportunity	<p>I would like more opportunities to create task sheets</p> <p>I would like more opportunities to create rubrics</p> <p>I would like more opportunities to receive feedback on task sheets</p> <p>I would like more opportunities to receive feedback on rubrics</p>

### **Author Biographies**

**Nicole Brownlie** is a lecturer in Secondary Education at the University of Southern Queensland. She is currently undertaking her PhD investigating the opportunity and capacity of early career teachers to create effective assessment. Her main research interests are the improvement of teacher-created summative assessment as well as social and emotional wellbeing in secondary school contexts, where she contributes professional development for Education Services Australia.

**Associate Professor Luke van der Laan** works in the School of Humanities and Communication at the University of Southern Queensland. His research interests include higher degree by research student learning and teaching and mixed methods practice-based research.

### **5.3 Links and Implications for Paper 3**

Findings reported in Paper 3 indicate a strong emphasis on the foundational knowledge and skills (Competence) required for creating assessment, complemented by the necessity of confidence (Confidence) in applying theoretical understanding practically. Moreover, the study highlighted the importance of providing opportunities (Opportunity) for teachers to practice and receive feedback on their assessment creation, emphasising the iterative nature of the three factors in enhancing performance. Paper 3 thus provides a practical framework for addressing the challenges faced by early career teachers in creating effective summative assessment.

This exploratory factor analysis paper provides empirical evidence for the conceptual framework proposed in Paper 2 (Chapter 3). The conceptual framework is supported by the experiences reported by early career teachers who completed the survey. The following chapter and paper explore the wider results gathered from the survey for any further insights to further answer the research question: *What do early career junior secondary teachers in Queensland need (if anything) to become effective creators of summative assessment?*

# CHAPTER 6: DESCRIPTIVE, FREQUENCIES AND CORRELATION ANALYSIS

## 6.1. Introduction

The following paper presents insights derived from the frequencies, descriptive analysis and correlation analysis conducted using the survey data. Paper 4, entitled *Demystifying the creation of effective summative assessment by early career teachers: What do they really think?* explores the perceptions of early career teachers as they relate to enabling conditions they require to create and implement effective summative assessment. Four research questions were asked in conducting the analysis for this paper:

1. What skills and knowledge did early career teachers believe they possessed at graduation regarding the creation and implementation of summative assessment?
2. What opportunities are available in their current teaching role to create and implement summative assessment?
3. What is the perception of confidence of early career teachers to create and implement summative assessment?
4. What would early career teachers want/need (if anything) to improve their ability to create and implement summative assessment?

As indicated by the aim of the paper and the research questions, this paper was directly considering the research aim and questions of this PhD study. Paper 4 was submitted to *Educational Assessment, Evaluation and Accountability* on 12 September 2023 (Appendix P). At the time of writing, the paper is at the stage of blind peer review.

## 6.2 Submitted Paper 4

Brownlie, N., van der Laan, L., & Burke, K. (2023). *Demystifying the creation of effective summative assessment by early career teachers: What do they really think?* [Manuscript submitted for publication]. School of Education, University of Southern Queensland.

**Educational Assessment, Evaluation and Accountability**  
**Demystifying the creation of effective summative assessment by early career teachers:**  
**What do they really think?**  
 --Manuscript Draft--

<b>Manuscript Number:</b>	
<b>Full Title:</b>	Demystifying the creation of effective summative assessment by early career teachers: What do they really think?
<b>Article Type:</b>	Original Research
<b>Keywords:</b>	summative assessment; early career teacher; secondary; confidence; professional development
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<b>Order of Authors Secondary Information:</b>	
<b>Funding Information:</b>	
<b>Abstract:</b>	Creating assessment is a complex and time-consuming task in any teacher's job description. This exploratory study examines the experiences of early career teachers in creating summative assessment items in junior secondary school contexts and seeks to understand: What do early career secondary teachers need to create and implement effective summative assessment items? An anonymous online survey was administered using a purposive convenience sample of Australian early career teachers. Key findings indicate that teachers feel inadequately prepared at graduation to create summative assessment items and have a desire to improve this skill. Based on the early career teachers' responses, a model for professional development is created and proposed. The findings increase the understanding of early career teachers' experiences which may be used to inform initial teacher education programs. The study further contributes to the design of early career teacher support, specifically relating to presenting a professional development model assisting the creation of effective summative assessment items.

## **Demystifying the creation of effective summative assessment by early career teachers: What do they really think?**

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### **Abstract**

Creating assessment is a complex and time-consuming task in any teacher's job description. This exploratory study examines the experiences of early career teachers in creating summative assessment items in junior secondary school contexts and seeks to understand: What do early career secondary teachers need to create and implement effective summative assessment items? An anonymous online survey was administered using a purposive convenience sample of Australian early career teachers. Key findings indicate that teachers feel inadequately prepared at graduation to create summative assessment items and have a desire to improve this skill. Based on the early career teachers' responses, a model for professional development is created and proposed. The findings increase the understanding of early career teachers' experiences which may be used to inform initial teacher education programs. The study further contributes to the design of early career teacher support, specifically relating to a development model towards the creation of effective summative assessment items.

**Keywords:**

summative assessment; early career teacher; secondary; confidence; professional development

**Subject classification codes:** 390402; 390307

**Statements and Declarations:**

The authors have no relevant financial or non-financial interests to disclose.

The authors have no competing interests to declare that are relevant to the content of this article.

This study was conducted with informed consent of the participants, under the ethical approval of the University of Southern Queensland's Ethics Committee: H19REA020.

The datasets generated and analysed during the current study are not publicly available due to the fact that they constitute an excerpt of research in progress but are available from the corresponding author on reasonable request.

**Author Contributions:**

This study is part of Nicole Brownlie's PhD: *Competence, Confidence and Opportunity of Early Career Secondary Teachers to Create Effective Summative Assessment*. Under the supervision and guidance of Associate Professor Luke van der Laan and Dr Katie Burke, the study was conceptualised and designed by Nicole. Material preparation and data collection was performed by Nicole Brownlie. Data analysis was performed by Nicole Brownlie and Luke van der Laan. The first draft of the manuscript was written by Nicole Brownlie and all authors commented on previous versions of the manuscript. All authors read and approved the final manuscript.



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## **Demystifying the creation of effective summative assessment by early career teachers: What do they really think?**

Creating assessment is a complex and time-consuming task in any teacher's job description. This exploratory study examines the experiences of early career teachers in creating summative assessment items in junior secondary school contexts and seeks to understand: What do early career secondary teachers need to create and implement effective summative assessment items? An anonymous online survey was administered using a purposive convenience sample of Australian early career teachers. Key findings indicate that teachers feel inadequately prepared at graduation to create summative assessment items and have a desire to improve this skill. Based on the early career teachers' responses, a model for professional development is created and proposed. The findings increase the understanding of early career teachers' experiences which may be used to inform initial teacher education programs. The study further contributes to the design of early career teacher support, specifically relating to presenting a professional development model assisting the creation of effective summative assessment items.

Assessment is used in many ways that go beyond merely informing students and teachers of the progress of student learning and understanding. Many stakeholders use data, particularly summative assessment data, in educational decision-making. These range from parents assisting students in choosing subjects and career aspirations to national governments determining where to invest in a country's future (Queensland Studies Authority, 2009).

Some countries externally create and administer summative assessment in an attempt to ensure fairness and equity across cohorts and to elicit data that is considered useful and reliable for all stakeholders. However, in other countries, the creation of summative assessment tasks is

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the responsibility of classroom teachers. In the latter case, there is a clear recognition of the need for teacher-created summative assessment to be of high quality, most importantly for students and all other stakeholders (Black et al., 2011; Wyatt-Smith et al., 2017).

Teacher-created summative assessment can be broadly defined as a formal item of work conducted at the end of a unit of study to give a final indication of student knowledge and understanding of the content taught (Brady & Kennedy, 2019). It is the “process by which teachers gather evidence in a planned and systematic way to draw inference about their students’ learning...and to report on their students’ achievements” (Assessment Reform Group, 2006, p. 4). This is known in some settings as classroom assessment designed for summative purposes (Rao & Banerjee, 2023).

An item of summative assessment may take many forms, including (but not limited to) oral presentation, formal examination, response to stimuli, essay, or scientific report. Summative assessment consists of two essential items devised by the teacher and given to students. The first item, commonly referred to as a “task sheet” in Australian contexts, outlines the assessment task, including the required format of the response, its relationship to the unit taught, expectations regarding the submission date and response length, and other relevant instructions. The second item is a “rubric” or “criteria sheet,” which lists the required criteria and quality levels of responses. Typically presented as a matrix, the rubric contains descriptions of varying quality levels of responses, ranging from excellent to poor, which are also used to evaluate the student’s work by the marker.

Australia is one such country where teachers are responsible for creating all summative assessment items from Foundation year to Year 10 (Brown et al., 2011). The landscape of senior secondary education (Years 11–12) has changed recently in Queensland, moving to externally

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created and moderated assessment. This has resulted in a closer focus on the quality of teacher-created summative assessment in junior secondary years to ensure students are fully prepared for the requirements and rigour of the external exam at the end of Year 12 (Queensland Curriculum and Assessment Authority [QCAA], 2022). As such, teachers are now required to assess junior secondary students in forms aligned to and in keeping with expectations that will prepare them for the demands and forms of senior secondary assessment. There is an implied assumption, however, that junior secondary teachers are adequately skilled in the creation of summative assessment that meet such expectations from the very beginning of their careers.

Considering the importance of assessment and the quality of its creation, there is still proportionately little research focused on improving the summative assessment creation skills of classroom teachers (Volante & Fazio, 2007). Importantly, a reasonable proportion of the research has indicated that teachers' assessment knowledge and skills are inadequate (DeLuca et al., 2016; Laveault, 2016; Panadero et al., 2022). The response in the research to date suggests that more training in assessment creation needs to occur in Initial Teacher Education (ITE) degrees (DeLuca et al., 2018; Wyatt-Smith et al., 2017). At this point, a significant misalignment becomes evident between the skills required of a graduate teacher from tertiary training institutions and the expectations of the profession in general.

ITE degrees have undergone significant change since 2011 (Australian Institute for Teaching and School Leadership [AITSL], 2011), with the introduction of the Australian Professional Standards for Teachers (APST). This document sets out different stages of a teacher's career and the skills and knowledge they should be able to demonstrate at each stage. The APST were consequently used to determine what will be taught within an ITE degree to ensure graduates have the requisite skills and knowledge to begin their career (AITSL, 2011).

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When these standards were implemented, it became evident that graduate teachers were more skilled in some areas than graduates whose programs were not aligned to the APST (for example, inclusive practices or professional engagement) (Caldwell & Sutton, 2010). In contrast, however, skills that previously were taught prior to alignment with the professional standards (for example, how to create a new piece of summative assessment) were determined by AITSL to be beyond what was needed for a graduate teacher. Standard 5 is the standard that considers the skills of assessing, providing feedback and reporting on student learning (AITSL, 2011).

According to AITSL, to graduate from an ITE degree, one must demonstrate *an understanding* of multiple aspects of assessment. It is not until one is at Proficient Career Stage of teaching that teachers need to be able to *create* assessment (see Appendix 1). Therefore, in aligning ITE programs with the Graduate Career Standards from AITSL, teachers are now entering the profession with the ability to demonstrate an understanding of and ability to use existing assessment. Critically, they are not expected to be and are not necessarily equipped to *create* summative assessment.

Those currently in middle or upper management in schools (who typically graduated prior to 2011) ordinarily would have these skills at graduation, given that their programs were completed prior to the implementation of the APST (Queensland College of Teachers [QCT], 2006). They, therefore, often assume the same skills are possessed by current early career teachers (Avargil et al., 2012; Chong et al., 2012). This national change to ITE programs occurred over ten years ago. Nevertheless, the problem of misalignment between AITSL-prescribed knowledge and skills versus the assumed level of knowledge and skills of commencing teachers is just as prevalent now as it was then.

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*Graduate teacher professional development*

The APST expects that graduate teachers (and, in fact, all teachers) will continue to grow, learn, and develop skills “on the job” (Wyatt-Smith et al., 2017). However, to this point, no specific program has been developed to facilitate consistent professional development pathway for graduate teachers during their first one to two years of practice, a crucial period still classed as the “graduate” or “early career” stage (AITSL, 2011; QCT, n.d.).

Professional learning opportunities for early career teachers in Australia appear to be ad-hoc, and there is no official early career teacher professional development program. Typical offers available tend to include one-off professional development opportunities about assessment, taking the forms of external or internal professional development (Ado, 2013; Gonski et al., 2018, for example); further tertiary study (although post-graduate study specifically in assessment is not offered in Australia); and single-use online or paper-based resources for which teachers can search and access as needed.

There are some groups for early career teachers, such as the Beginning and Establishing Teachers Association (BETA, 2023), who promote professional development opportunities and build a sense of community and support between colleagues. However, most professional development is left to the personal initiative of the early career teacher to undertake of their own accord. Therefore, professional development sessions tend to be chosen and attended in a reactive way as situations arise rather than as a proactive measure to continue improvement across all areas (Zhang & Wong, 2021).

When considering the Australian early career teacher landscape, research by experienced teachers, policymakers, and academics has been undertaken on assessment topics such as “how ITE programs can be improved” (Teacher Education Ministerial Advisory Group, 2014; Wyatt-

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Smith et al., 2017), the level of assessment literacy of early career teachers and suggestions for improvement (DeLuca et al., 2018) and determining the most suitable form of professional development in order to improve teacher quality (McCormack et al., 2006).

What has not been undertaken to this point, however, is an exploration of the thoughts, experiences, and beliefs of early career teachers themselves in terms of how prepared they felt to create summative assessment upon entry to the profession, the experiences of creating assessment thus far in their career, and the areas in which they believe they need to improve. Further, the extant literature appears not to have addressed how an evidence-based professional development approach may likely accelerate early career teachers' improvement to create effective summative assessment.

*Conceptual framework underpinning this study*

A thorough review of existing research was undertaken on what is needed to improve the effectiveness of teacher-created assessment (authors, under review). Professional development undertaken when the educator was already qualified (career) and working in schools (experience) was the review's foci. The literature revealed two main schools of thought on how teacher-created summative assessment can be improved: equip a teacher with more knowledge and skills (Fan et al., 2011; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014; Volante & Fazio, 2007); or increase the opportunities a teacher has to practice, reflect and adjust assessment items (Biesta, 2017; DeLuca & Johnson, 2017; Edwards, 2017; Lovett & Cameron, 2011; Schoepp & Tezcan-Unal, 2016).

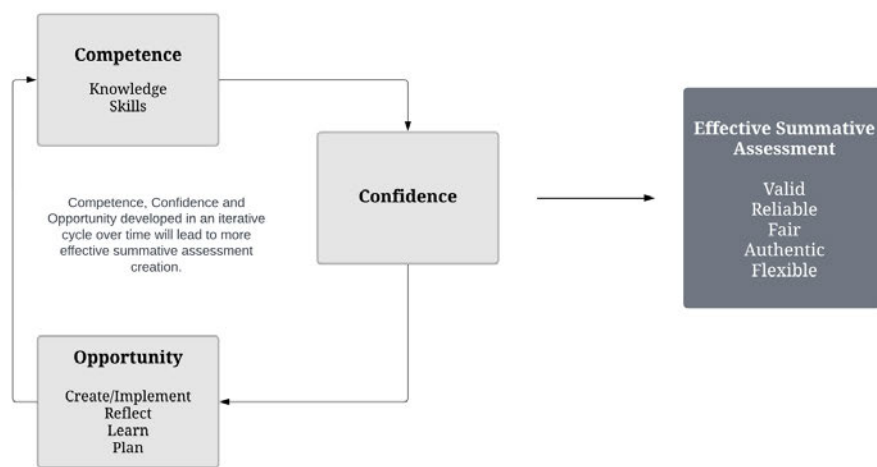
Figure 1 is a conceptual model, created from a systematic literature review (Brownlie et al., 2023), an analysis of key concepts and their relationships and an Exploratory Factor Analysis (EFA) investigating the underlying structure of the factors (authors, under review). The model

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proposes that it is not simply an increase in competence, opportunity or confidence that an early career teacher requires but an iterative cycle between the factors(Competence, Opportunity and Confidence). Indeed, the interrelationship between Competence (knowledge and skills), Opportunity (create, feedback, reflect, plan), and Confidence creates a synergy that would improve the effectiveness of the summative assessment (Mills & Harrison, 2020).

**Figure 1**

*Conceptual Framework of the Improvement of Effective Summative Assessment Creation*



*Note:* This model shows the proposition underlying this research: that it is not one factor that leads to increased effectiveness in summative assessment creation; rather, an iterative cycle of Competence, Confidence, and Opportunity implemented over time.

Source: authors' own work

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*Aim and research questions.*

The aim of this study was to explore the perceptions of early career teachers as they relate to what enabling conditions they require to create and implement effective summative assessment.

The following research questions guided the analysis:

1. What skills and knowledge did early career teachers believe they possessed at graduation regarding the creation and implementation of summative assessment?
2. What opportunities are available in their current teaching role to create and implement summative assessment?
3. What is the perception of confidence of early career teachers to create and implement summative assessment?
4. What would early career teachers want/need (if anything) to improve in the area of summative assessment creation?

**Method**

The study was exploratory and sought to address gaps in the literature. An anonymous quantitative survey method was used in this study to explore early career teachers' thoughts and experiences with creating and implementing summative assessment in junior secondary school. To be included in the study, participants needed to identify as early career teachers and have had studied in, or are currently teaching in, secondary school in Queensland. Consequently, one hundred and sixteen teachers completed the online survey. Queensland was targeted due to the recent changes in senior secondary assessment and the effects on junior secondary teachers, particularly regarding the quality of their teacher-created summative assessment (QCAA, 2022).



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***Sampling***

A purposive non-random sample invited participants to complete the online survey through social media groups on Facebook and Twitter and emails from the researchers’ networks. Participants in the final sample ( $N=116$ ) consisted of 75.9% females, 22.4% males, and 1.7% who preferred not to disclose this information, with 35.3% between 20–25 years of age, 19.8% between 26–30, 11.2% between 31-35, and 33.7% over 36 years. Most of the participants were either fully registered (38.8%) or provisionally registered (58.6%), meaning they had graduated with an ITE degree but had taught for less than 200 days and had not yet demonstrated their ability to teach at the Proficient Career Stage according to the APST (2011). The remaining 2.6% of participants were on a “permission to teach” program, a program established due to teacher shortages that permits students still undertaking their ITE degree to teach at a school under the supervision of another teacher (QCT, n.d.). 55.2% of all participants had taught for less than one year, with 90.5% ( $N=105$ ) teaching for less than five years. The remaining participants still considered themselves “early career teachers” due to taking extended leave or teaching in a casual or part-time capacity since graduation.

When considering the teaching demographics of the participants in the study, 75.9% were teaching in a state (public) school, and 24.1% were in a non-state school (either Catholic or Independent system). Most (80.7%) were teaching at a school with 500 or more students enrolled. Almost all participants taught in at least one of their specified teaching areas in a class from Years 7–10. Table 1 details all demographic details of the participants who completed the survey.

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**Table 1**

*Frequencies of Participant Demographics (N=116)*

Demographic	Frequency (%)
Gender	
Male	22.4
Female	75.9
Not disclosed	1.7
Age	
20-25	35.3
26-30	19.8
31-35	11.2
36-40	12.9
41+	20.8
Teacher registration status	
Not yet registered	2.6
Provisionally registered	58.6
Fully registered	38.8
Years of experience	
0-1	55.2
2-3	21.6
3-4	9.4
4-5	4.3
6+	9.5
Location of school	
Metropolitan	43.3
Regional	38.8
Rural/remote	17.1
Number of students attending the secondary school	
<100	3.4
101-200	5.2
201-300	4.3
301-500	6.9
501-800	22.4
801-1000	14.7
>1001	43.1
Type of school	
State/Government	75.9
Catholic	7.8
Independent	16.3

Source: authors' own work

***Measurement Items***

The self-report survey included a total of 81 questions (items) organised across seven parts (see Appendix 2 for a full list of questions and response options). Part One contained 14 items related

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to demographic and non-identifying personal information. Part Two consisted of seven items related to their experience with summative assessment education in their ITE degree (e.g., how many courses explicitly taught content on summative assessment, explicit teaching of how to interpret summative assessment items, explicit teaching of how to create assessment rubrics). Considering skills, knowledge, and preparedness to assess at graduation was examined over ten items in Part Three (e.g., the ability to identify a well-constructed task sheet and explain why a rubric was well- or poorly constructed). Part Four asked 16 questions about participants' confidence in their knowledge and skills in the present (e.g., can explain why a task sheet is well- or poorly constructed, confidence in creating an effective rubric). It is important to note that questions regarding task sheet creation and rubric creation were deliberately asked separately, as teachers may have had differing opinions or experiences of task sheets or rubrics. Part Five consisted of five definition matches to determine participants' theoretical knowledge of the principles of summative assessment creation, which have been demonstrated as integral to quality assessment item development (Brownlie et al., 2023). Part Six contained 12 items related to opportunities participants had been given to create, receive feedback on and implement summative assessment items. Questions were also asked as to potential reasons why a participant may not have had the opportunity to create summative assessment thus far in their career. The final part (Part Seven) asked participants to consider whether they would like to improve in any area of summative assessment creation and how they would like this improvement to "look" (more knowledge and skills, professional development options, self-paced online courses, and an ongoing mentoring relationship with a senior colleague for example). All items were asked in closed-question format, with a five-point scale, yes/no or "select the most appropriate response for you" answers required.

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**Data analysis**

Being an exploratory study, several analyses were carried out on the data collected. Before conducting any analysis, the data was cleaned and screened to ensure the quality and normality of the data. Invalid cases were removed (for example, non-secondary teachers, no link to Queensland for training or current teaching), and a search for missing data was conducted. No missing data were identified, so all 116 cases were deemed complete and valid responses. Screening was then undertaken by checking skewness, kurtosis, and p-p plots to determine the normality of data distribution. A visual test of the p-p plots confirmed normal distribution with no outliers. This became the data set used for all interpretation and analysis. A copy of this preliminary analysis can be found in the supplementary material.

At the outset, it was important to consider the quality of the data based on the descriptive statistics generated associated with the variability of the data. All standard deviations (*SD*) were within acceptable limits, suggesting that the variability within the dataset was acceptable and that the data exhibited good consistency.

Firstly, an analysis of frequencies was calculated for the demographic variables to gain an understanding of the profile of participants responding to the survey. It is acknowledged that the response may not fully represent the target population (early career teachers teaching Years 7–10 in Australian secondary schools) as the sampling was not randomised. Responses would likely include a slight bias towards those early career teachers who are interested in assessment creation and are more confident than peers who were not interested or not confident enough to complete a survey on this topic.

Secondly, frequencies of the scale questions were calculated. These would indicate the levels of agreement of statements and question responses based on a five-point Likert scale. In

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addition to determining the level of aggregated agreement, a preliminary observation of the results would note any abnormalities from what would be considered normal or expected, as suggested in existing literature. An example of an abnormality could be responses that were overwhelmingly uncertain for a question that, in the literature, could be assumed to be a skill in which early career teachers were confident.

An exploratory factor analysis was conducted on the data previously (authors, under review) which determined the presence of three factors associated with the creation of effective summative assessment. These were Competence, Confidence and Opportunities (see Appendix 3 for items contributing to each Factor). After the factor analysis was performed, a score was calculated for each factor by obtaining the mean for all items comprising each factor. A reliability analysis producing a Cronbach’s alpha value for the scale measurement as well as that of each extracted factor would be calculated post-analysis (Field, 2018). These composite factors were then used for further analyses in this study (see Appendix 4).

Finally, a correlation analysis using the Pearson Correlation Coefficient was conducted to uncover any potential relationships between items. A correlation was identified as “statistically significant” at both the 0.01 level and 0.05 confidence level according to the 2-tailed test (Field, 2018). Only correlation coefficients that were statistically significant were retained for an analysis of the results.

## **Results**

This section reports on findings as they relate to and are grouped by the research questions. As such, it is structured with the research question preceding relevant results. Thereafter, the discussion of results is similarly organised.

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**RQ 1: What skills and knowledge did early career teachers feel they possessed at graduation regarding the creation and implementation of summative assessment items?**

This research question was asked in two parts of the instrument, which explicitly looked at assessment education in the ITE degree and thoughts on preparedness to create and implement summative assessment at graduation. Table 2 provides a summary of the frequency statistics for the relevant questions.

**Table 2**

*Frequency Statistics for Items Relating to Assessment Knowledge and Skills During ITE Program and Preparedness at Graduation*

Item	Frequency (%)		
<i>Courses devoted to assessment in ITE degree</i>			
One or more courses devoted to assessment	69.0		
Explicit teaching of summative assessment within another course/courses	27.0		
No explicit teaching of summative assessment	4.0		
<i>Skills taught in ITE degree</i>			
Interpret existing summative assessment items	Disagree	Unsure	Agree
Mark to an existing rubric	26.7	14.7	58.6
Modify an existing task sheet	27.6	17.2	55.2
Modify an existing rubric	51.7	15.5	32.8
Create a new task sheet	56.0	14.7	29.3
Create a new rubric	37.0	10.3	52.7
	37.9	12.1	50.0
<i>Confidence of knowledge and skills at graduation</i>			
Knew what to include in a task sheet	Disagree	Unsure	Agree
Could identify a well-constructed task sheet	29.4	8.6	62.0
Could explain why a task sheet was poorly- or well-constructed	22.4	12.1	65.5
Could identify how to improve a task sheet	30.2	14.7	55.1
Could make improvements to a task sheet	23.3	17.2	59.5
Knew what to include in a rubric	20.7	16.4	62.9
Could identify a well-constructed rubric	30.1	12.9	57.0
Could explain why a rubric was poorly- or well-constructed	31.9	15.5	52.6
Could identify how to improve a rubric	37.9	14.7	47.4
Could make improvements to a rubric	36.2	19.0	44.8
	34.5	16.4	49.1

Source: authors' own work

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Just over half the participants identified their ITE programs consisting of one or more courses devoted to assessment (69.0%). Of significant note, 4.0% of participants identified that they had no explicit teaching of summative assessment at all in their ITE programs. The vast majority of students believed they had, at a minimum, explicit teaching of summative assessment within another course (96.0%). Questions were then asked on the specific skills taught regarding summative assessment.

When asked to consider the skills taught within their ITE degree, 58.6% of participants agreed they were taught to *interpret* an existing piece of summative assessment, and less than half agreed they were taught how to *modify* an existing task sheet or rubric to fit the context and requirements of a specific class (32.8% were taught to modify a task sheet and 29.3% were taught to modify an existing rubric). Just over half (55.2%) agreed that they were taught to mark according to an existing rubric. While over half of participants agreed that they had been taught to *create* a task sheet (52.7%) or rubric (50.0%) within their ITE degree, only 11.2% of participants strongly agreed that this was the case.

When asked to evaluate their confidence in their knowledge and skills at graduation, the results were slightly more positive. From a given list of skills regarding interpreting, using, and modifying existing task sheets and rubrics, as is the requirement for a graduate teacher (AITSL, 2011), 55.59% of participants, on average, were positive about their abilities at graduation.

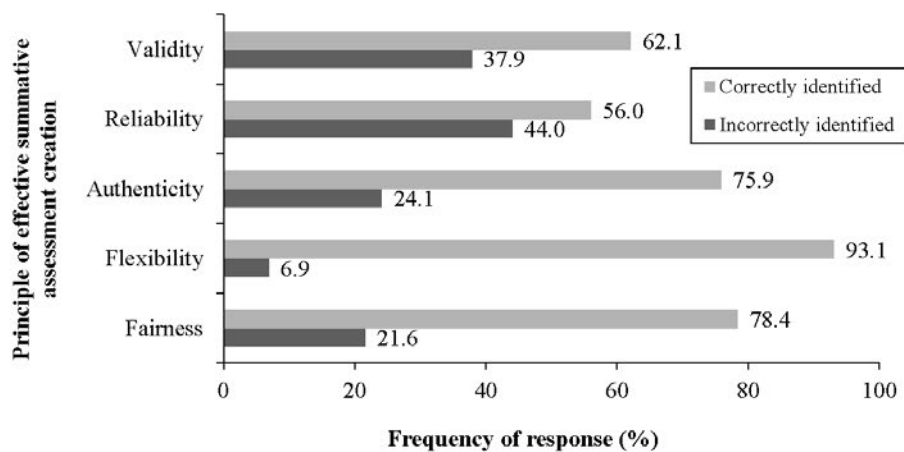
Five questions were asked on theoretical principles of effective summative assessment creation (Brownlie et al., 2023). Definitions were given, and participants were asked to match the definition to a listed principle. This was the only section in the survey where actual knowledge of summative assessment was evaluated. Figure 2 displays how often the definitions were correctly and incorrectly matched to each principle. Although these are not necessarily the terms used by

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every ITE program or school, as there has not yet been a definitive piece of research published to define these, the definitions and terms have been used in different combinations within various texts for many years. The most correctly identified definition was “the student has some choice in either topic or presentation mode”, with 93.1% of participants matching this to the principle of flexibility. Only 56.0% of participants correctly matched the principle of reliability to the definition: “the task and rubric have been written in such a way that objective and defensible marking of the task can take place, no matter who marks it or when it is marked”.

**Figure 2**

*Participant Knowledge of Summative Assessment—Matching a Given Definition to the Correct Principle of Effective Summative Assessment Creation*



Source: authors' own work



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***RQ 2: What opportunities are available in their current teaching role to create and implement summative assessment items?***

Part Six of the survey enquired as to the opportunities that early career teachers have had from graduation to the present to create and implement summative assessment task sheets and rubrics (see Table 3).

**Table 3**

*Frequency Statistics and Correlations Relating to Opportunities for Summative Assessment Creation Since Graduation*

Item	Frequency (%)						
	At least once	No	Never	Rarely	Sometimes	Mostly	Always
Create task sheet	75.9	24.1					
Create rubric	59.4	42.2					
Teach the unit leading to summative assessment (task sheet)					5.7	31.4	62.9
Teach the unit leading to summative assessment (rubric)			2.3	3.4	4.5	26.1	63.7
Have received feedback on task sheet			2.1	10.3	9.3	26.8	51.5
Have received feedback on rubric			10.4	10.4	5.2	22.1	51.9

Source: authors' own work

Table 3 also identifies that 75.9% of all participants indicated that they had created a summative assessment task sheet since graduation; however, only 59.4% had created a summative assessment rubric. The top two reasons for not creating a rubric were the school used an existing rubric (65.6%) and the early career teacher had not been asked (29.8%). Only 2.0% of the participants identified that they had been asked to create a rubric and declined.

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When looking at the creation of summative assessment, 94.3% of those who had created a task sheet predominantly also taught the unit leading up to the summative assessment. This is in comparison to 89.8% of respondents who created a rubric and also taught the unit leading up to the summative assessment.

***RQ 3: What is the perception of confidence of early career teachers to create and implement summative assessment items?***

Participants were asked to rate their confidence on a variety of assessment creation knowledge and skills both at graduation and at the time of the survey. Table 2 above illustrated the frequency statistics for the confidence of knowledge and skills at graduation and Table 4 shows the frequency statistics for the same knowledge and skills in the present.

**Table 4**

*Increase of Confidence Relating to Summative Assessment Knowledge and Skills Now,*

Confidence in Knowledge and Skills	At graduation		Now		<i>t</i>	Effect Size	Sig. ( <i>p</i> )
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
Know what to include in a task sheet	3.39	1.193	4.16	.823	10.127	.940	<.001
Can identify a well-constructed task sheet	3.55	1.122	4.19	.801	8.598	.799	<.001
Can explain why a task sheet is poorly- or well-constructed	3.36	1.153	4.12	.836	9.804	.910	<.001
Can identify how to improve a task sheet	3.43	1.057	4.09	.870	8.119	.754	<.001
Can make improvements to a task sheet	3.48	1.051	4.15	.772	9.301	.864	<.001
Know what to include in a rubric	3.36	1.182	4.01	.890	7.854	.729	<.001
Can identify a well-constructed rubric	3.26	1.143	4.01	.918	8.780	.816	<.001
Can explain why a rubric is poorly- or well-constructed	3.16	1.177	3.90	.981	8.083	.751	<.001
Can identify how to improve a rubric	3.10	1.130	3.88	.979	8.570	.796	<.001
Can make improvements to a rubric	3.16	1.147	3.89	.949	8.262	.767	<.001

Source: authors' own work

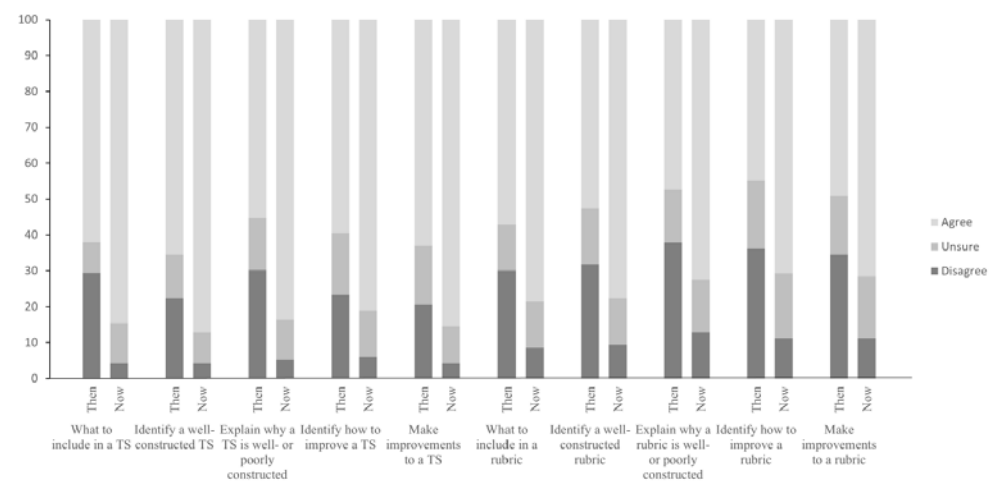
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Figure 3 illustrates that there was a considerable increase in the confidence of early career teachers from the point of graduation to the present across all skills and knowledge related to summative assessment. This was tested for significance with a paired *t* Test (Table 4). The most significant increase in confidence was in the identification on how to improve a rubric with a 0.78 in mean score from the point of graduation to now ( $t(115) = 8.570; p < .001$ ). Another notable significant increase in confidence was knowing what to include in a task sheet. The mean score now was 4.16, which was compared to the mean score at graduation of 3.39. The results reveal that there was an increase in confidence ( $t(115) = 10.127; p < .001$ ). The effect size is .940, which is considered large. All skills increased from the point of graduation to now, all with  $p < .001$  and large effect sizes.

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**Figure 3**

*Comparison of Confidence in Summative Assessment Knowledge and Skills from Graduation to Now*



Source: authors' own work

Table 5 considered the remaining items related to confidence. Most participants agreed that their theoretical knowledge of summative assessment had improved since graduation (81.8%). Similarly, their perception of their skills in creating summative assessment had also improved since graduation (83.5%). However, only 74.9% believed their confidence in creating assessment had increased since graduation, with 12.1% either disagreeing or strongly disagreeing with this statement.

There was still a notable discrepancy between confidence in creating a task sheet and creating a rubric. More than four in five participating early career teachers were confident in

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their theoretical knowledge of summative assessment (80.2%), yet only three in five were confident in their rubric creation skills (66.4%).

**Table 5**

*Frequency Statistics of Confidence Now*

Item	Frequency (%)		
	Disagree	Unsure	Agree
I am confident in my knowledge of summative assessment	3.0	16.8	80.2
I am confident in my ability to create an effective task sheet	6.0	10.9	83.1
I am confident in my ability to create an effective rubric	13.9	19.7	66.4
My theoretical knowledge in creating summative assessment has increased since graduation	9.5	8.7	81.8
My skills in creating summative assessment have improved since graduation	7.8	8.7	83.5
My confidence in creating summative assessment has improved since graduation	12.1	13.0	74.9

Source: authors' own work

Statistically significant correlations between a number of items related to participant perceptions of confidence emerged from the analysis. These are presented in Table 6.

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**Table 6**

*Correlation Matrix of Confidence Items*

	Opportunities to create a task sheet	Opportunities to create a rubric	Not created task sheet: Not been asked	Not created rubric: Not been asked	Not created task sheet: Would have liked to	Not created rubric: Would have liked to	Confident in knowledge of SA	Confident in ability to create a task sheet	Confident in ability to create a rubric	Knowledge in creating SA has improved	Skills in creating SA have improved
Confident in knowledge of SA	.304**	.308**	-.269**		.383**		-				
Confident in ability to create a task sheet	.296**	.324**	-.237*	-.251*	.285**	.243*	.560**	-			
Confident in ability to create a rubric		.391**	-.218*	-.262**	.230*	.359**	.544**	.656**	-		
Knowledge in creating SA has improved	.323**	.459**			.310**	.287**	.369**	.249*	.201*	-	
Skills in creating SA have improved	.434**	.391**	-.213*	-.219*	.397**	.312**		.334**		.849**	-
Confidence to create SA has improved	.481**	.459**	-.347**	-.267**	.465**	.408**	.475**	.435**	.349**	.702**	.839**

*Note.* Only statistically significant results of over .200 have been included in this matrix. Strongly statistically significant results of over .700 have been highlighted.

\*Correlation is significant at the 0.05 level (2-tailed)

\*\*Correlation is significant at the 0.01 level (2-tailed)

Source: authors' own work

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The perceived number of opportunities a participant had since graduation to create and implement task sheets ( $r = .304, p < .01$ ) and rubrics and their confidence ( $r = .308, p < .01$ ) was moderately correlated. Participants who believed their skills and confidence in creating summative assessment had improved or believed their knowledge in creating assessment had improved; both had moderately strong statistically significant correlations to those who had had more than one opportunity to create a task sheet ( $r = .434, p < .01$ ;  $r = .481, p < .01$ ; and  $r = .323, p < .01$  respectively) or rubric ( $r = .391, p < .01$ ;  $r = .459, P < .01$ ; and  $r = .459, p < .01$  respectively). However, there was a statistically significant *negative* correlation between those who had not been asked to create a task sheet or rubric and their confidence ( $r = -.347, p < .01$  and  $r = -.267, p < .01$  respectively) and skills ( $r = -.213, p < .01$  and  $r = -.219, p < .01$  respectively) to do so now.

Most notably, there was a strong correlation between the improvement in participants' skills, with both knowledge ( $r = .849, p < .01$ ) and skills ( $r = .839, p < .01$ ), in creating assessment since graduation. There was also a strong correlation between perceptions of skills in creating assessment having improved since graduation and confidence to create assessment having improved since graduation ( $r = .702, p < .01$ ).

***RQ 4: What would early career teachers want/need (if anything) to improve in the area of summative assessment creation?***

The final part of the survey (Part 7) asked participants to identify if there were any areas in which they would like to improve regarding the creation of summative assessment and, if so, how they would prefer to gain these skills, opportunities, or knowledge. Table 7 presents the frequencies related to these questions.

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**Table 7**  
*Frequency Statistics for Items Focussed on Improvement in Summative Assessment Creation*

Item	Frequency (%)		
	Disagree	Unsure	Agree
I would like more opportunities to create task sheets	13.9	20.9	65.2
I would like more opportunities to create rubrics	11.3	24.3	64.4
I would like to receive more feedback on task sheets	12.1	18.3	69.6
I would like to receive more feedback on rubrics	10.5	20.0	69.5
To improve, I need knowledge & skills	12.2	16.5	71.3
To improve, I need confidence	29.6	10.4	60.0
To improve, I need practice	11.3	5.2	83.5
To improve, I need feedback	12.2	13.9	73.9
To improve, I need all (knowledge, skills, confidence, practice, and feedback)	6.1	7.0	86.9

Source: authors' own work

Over half of all respondents either agreed or strongly agreed that they would like more opportunities to create task sheets (65.2%) and rubrics (64.4%). They would also like the opportunity to receive more feedback on task sheets (69.6%) and rubrics (69.5%). When asked to identify what was needed for them to improve further in summative assessment creation, 71.3% believed they needed more theoretical knowledge and skills, 60.0% believed they needed increased confidence, 73.9% believed they needed more feedback and 83.5% believed they needed more opportunities to practice creating summative assessment items. Over 86.9% of all participants either agreed or strongly agreed that they need a combination of knowledge, confidence, practice, and feedback in order to improve.



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The correlation analysis indicated there were some strong themes emerging to indicate early career teachers desire for improvement. Table 8 presents the statistically significant correlations relevant to Research Question Four.

**Table 8**

*Correlation Matrix of Desired Future Opportunities and Feedback*

Variable	1	2	3	4
1. More opportunities to create task sheets	-			
2. More opportunities to create rubrics	.866**	-		
3. More opportunities to receive feedback on task sheets	.678**	.629**	-	
4. More opportunities to receive feedback on rubrics	.542**	.589**	.841**	-

Note. \*\*Correlation is statistically significant at the 0.01 level (2-tailed)

Source: authors' own work

Some of the strongest correlations between items were found in this section (see Table 8). There was a strong statistically significant correlation between “I would like more opportunities to create rubrics” and “I would like more opportunities to receive feedback on rubrics” ( $r = .589, p < .01$ ). An even stronger statistically significant correlation was identified between wanting to create task sheets and receiving feedback on task sheets ( $r = .678, p < .01$ ). Yet, the strongest correlation was the desire early career teachers had to have more opportunities to create task sheets and rubrics ( $r = .866, p < .01$ ).

The final item in Part 7 listed forms of professional development typically used in education and asked participants to identify the statement most indicative of their interest or experience. The options were 1= haven't done, not interested, 2= haven't done but would like to, 3= haven't been because it wasn't approved, 4= have done, self-directed, and 5= have done, directed by the school. Table 9 illustrates the responses to this item.

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**Table 9**

*Frequency Statistics for the Interest in Different Forms of Professional Development*

Form of Professional Development	Frequency (%)				
	Haven't done, not interested	Haven't done, would like	Haven't done, not approved	Have done, self-directed	Have done, directed by school
One-off PD less than 1 day	22.6	39.1	7.8	13.0	17.5
Multiple PD less than 1 day	31.3	36.5	11.3	6.1	14.8
Internal short course in person	32.2	38.3	7.0	6.1	16.4
External short course in person	40.9	33.0	10.4	5.2	10.5
Self-paced online course	35.1	30.7	11.4	14.9	7.9
Ongoing external training regularly	49.1	29.8	11.4	4.4	5.3
Ongoing internal training from senior colleague	28.1	37.7	10.5	9.6	14.1
Ongoing mentoring relationship with senior colleague	17.5	23.7	6.1	25.4	27.3
Informal conversations as needed	9.6	14.9	5.3	53.5	16.7

Source: authors' own work

Teachers in their first two years of teaching were not interested in engaging in ongoing external training on a regular basis (49.1%) or even in attending an external short course (40.9%). An ongoing mentoring relationship with a senior colleague and informal conversations as needed had significantly positive responses – over half of the participants already had this relationship, with another 29.8% wanting it. Informal conversations already occurred for 70.2% of participants, with another 20.2% wanting this opportunity. Also, less than 10% of early career teachers had engaged in ongoing training with someone external to the school, and in fact, 1 in 2 were not interested in this, even if they were given the opportunity.

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The results of this study, including both frequency and correlation analyses, have been presented above in response to the research questions. Similarly, these results will be discussed as they relate to each research question.

## **Discussion**

The overarching purpose of this research was to explore what enabling conditions early career teachers need to create and implement effective summative assessment. Questions were asked on the preparation they received throughout their ITE degree (RQ1), opportunities they have had to create and implement summative assessment thus far in their career (RQ2), how confident they felt in their current knowledge and skills (RQ3), and if and how they may like to improve in summative assessment creation in the future (RQ4).

### ***Preparation in summative assessment by graduation (RQ1)***

All universities have some autonomy in how and what they teach within their degrees (*Tertiary Education Quality and Standards Agency Act, 2011* [Cth]); however, in Australia, all preservice teachers must be able to demonstrate their competence in each of the APST in order to graduate (AITSL, 2011). The 4% of the participating early career teachers that could not identify receiving any explicit teaching on summative assessment creation within their ITE degree may be due to the participants' inability to recall these experiences.

Some universities choose to teach Standard 5 of the APST (AITSL, 2011) not as a dedicated course on assessment but rather to distribute and address skills and theoretical knowledge within other curriculum or pedagogy courses. Nevertheless, it is recommended this instruction of summative assessment needs to be made more explicit to ensure early career

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teachers can remember, retrieve, and rely on the training they received within their degree as a starting point for future improvement.

Approximately half of surveyed teachers at the commencement of their careers did not feel equipped by their ITE program to create new summative assessment nor modify existing task sheets and rubrics. This confirms that teachers' confidence is highest in *choosing and using existing* summative assessment at graduation (DeLuca, 2012) and that confidence increases during professional practice in creating assessment (Kleinsasser, 2014).

***Opportunities to create and implement summative assessment (RQ2)***

The results from this section were not as decisive as responses in other sections. A reason for this is likely to be one of context. Although all participants taught junior secondary and were homogenous in this regard, it is to be expected that opportunities to create and implement summative assessment would vary depending on a variety of work conditions. One of the areas of most difference in this study in Queensland is the size and location of secondary schools. These vary from small schools in remote communities to very large, metropolitan schools. The number of teachers in each subject area vary accordingly.

Single teachers in remote areas are likely to have more opportunities to create assessment simply due to need and not necessarily desire. It stands to reason that the fewer colleagues one has to rely on, the more opportunities (responsibilities) a teacher would have, regardless of their experience.

In the case of early career teachers who had not created a rubric thus far in their career, the results suggest that schools or subject departments do favour using "tried and tested" rubrics. However, it is plausible that some subject areas may reuse a rubric but create a slightly different

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task sheet or, in fact, may not use a task-specific rubric. This leads to the question: In the event of schools or subject departments reusing existing rubrics, what opportunities can be offered to early career teachers to create rubrics during their initial years of practice? The results suggest that in these cases, early career teachers would not be able to progress to Proficient Career Stage without demonstrating their ability to create a rubric (AITSL, 2011).

It is encouraging that the results show that for those who had not yet created a task sheet or rubric, very few had declined to create these due to a lack of confidence or time. The majority of those who had not had the opportunity indicated that they did, in fact, want the chance to create a piece of summative assessment.

There is an assumption that early career teachers who create summative assessment for a unit would also have taught the unit. However, this was only the case in 75% of responses. This raises the question of what opportunities in practice exist for the remaining 25% of instances where teachers have not taught the unit yet have created the assessment.

***Confidence to create and implement teacher-created summative assessment items (RQ3)***

Some of the strongest statistically significant correlations were the correlations between items related to the composite scales which made up the factors of Opportunities, Competence and Confidence that have improved since graduation. The results confirm that an increase in Opportunity leads to increased Competence. Further, the correlations between items describing Competence and Confidence suggest strong reciprocal associations. Early career teachers believe it was a combination of Competence and Confidence that enabled them to create more effective summative assessment. As Opportunities increase after graduation, it is likely the association between Competence and Confidence would yield a more effective summative assessment.

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A negative correlation between Opportunity and Confidence indicates the fewer opportunities the early career teacher has to create summative assessment, the less confidence they are likely to create. This may be described as a lack of opportunity being associated with increased self-doubt. The correlations and number of participant responses point toward the importance of Opportunity in stimulating the positive reciprocal interaction between Competence and Confidence.

*How to assist early career teachers in improving their creation of summative assessment items (RQ4)*

There was a negative response by participants to seeking professional development in summative assessment creation (see Table 9). This suggests an interesting paradox. While participants indicated a desire to improve their Competence and Opportunities, they did not express an interest in formal professional development. However, they did express a desire to engage in a mentoring relationship and informal conversations with colleagues. While it appears that participants desire more opportunities to create summative assessment (“I would like more opportunities to create task sheets”—65.2%, or rubrics—64.3%), they do not desire to enrol in externally provided professional development. This may be moderated by their perceptions as to their need for development at a point in time. A number of issues may create this dissonance. As an example, since 2020, the most common cause for early career teachers leaving the profession has been an overwhelming workload (Amitai & Van Houtte, 2022). Therefore, this contradictory response in the survey could be explained by early career teachers feeling the need to prioritise and manage their workloads in “keeping up”, meaning tasks that are not seen as urgent are put on hold.

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Confidence takes time to develop. Therefore, a simple combination of improving competence and opportunity at a single point-in-time experience will not have the same influence on a teacher’s assessment creation that an iterative, ongoing process will (Gumus & Bellibas, 2021). Literature on professional development for early career teachers suggests that the most effective methods are not externally delivered one-off “professional development days” (Ado, 2013; Cameron et al., 2013; DeLuca et al., 2018). Rather, the responses suggest that access to ongoing, relationship-based and context-specific learning opportunities are most effective to enact significant change in summative assessment creation.

The results of this study confirm that early career teachers want to improve their summative assessment creation. They are interested in creating summative assessment and would like the opportunity to develop this competence. Extant literature has determined that educators are most open to learning new skills, requesting and taking on feedback from those more experienced in the first few years of their career (Ado, 2013; Gonski et al., 2018; Patrick et al., 2010). The results of this study support this notion, except that in the area of summative assessment, they do not desire formal professional development. Future studies are required to resolve whether this is assessment-specific or a general sentiment. One-off professional development is still used by both schools and early career teachers. However, the preference expressed by participants in this study was clearly in favour of having someone who understands their context and requirements of their school to assist them in a very practical and tangible way. This study does evidence that informal, ongoing mentoring relationships are what early career teachers prioritise as their preferred form of professional development.

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**Implications for future research**

It is acknowledged that the sample of this study is limited. While it has useful preliminary findings, further research is required to determine the extent to which the findings can be generalised to the population of early career teachers. This was also an exploratory study, and as such, no causality can be concluded. However, statistically significant correlations suggest that further confirmatory studies are justified. Participants self-selected, and as such, the views of early career teachers who may not have had an interest may be excluded. It is recommended that future studies adopt random sampling of early career teachers.

The outcomes of this study have provided preliminary responses to the research questions posed. The following are recommendations for practice and future research are proposed:

- 1) The dissonance between ITE graduate skills and practice expectations need to be highlighted in future studies as a material concern when evaluating performance, in this case, the creation of summative assessment. School management should be made aware of the attributes of graduating teachers. This will facilitate managing expectations while informing support and opportunities offered to teachers early in their career.
- 2) Apart from the fact that graduate teachers must demonstrate evidence of creating assessment items before becoming “proficient” teachers (AITSL, 2011), this study confirms that the more time that passes before practicing the creation of summative assessment, the more likely it is that confidence will decline. The study suggests that early opportunities are critical in stimulating the positive association between competence and confidence. As such, even minor early tasks can have a positive outcome in terms of early career teacher development.



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3) Future studies should investigate the extent to which in-school mentoring programs with a focus on assessment is associated with early career teacher development in summative assessment.

This study sought to explore the perceptions and experiences of early career teachers regarding the creation of summative assessment. The findings i) support the relationships between the variables of the conceptual model (Figure 3), ii) explain the nature of Opportunities, Competences and Confidence as they relate to early career teacher-created summative assessment, and iii) provide greater insight into the role and form of professional development most suited to early career teachers. Limitations and future lines of inquiry have also been presented that can further build on these preliminary insights.

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**Appendix 1**

*Standard 5 – Assess, Provide Feedback and Report on Student Learning From Graduate to Lead Stage (AITSL, 2011)*

Descriptor at career stage			
Graduate	Proficient	Highly Accomplished	Lead
Focus area 5.1 – Assess student learning			
Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative and summative approaches to assess student learning.	Develop, select and use informal and formal, diagnostic, formative and summative assessment strategies to assess student learning.	Develop and apply a comprehensive range of assessment strategies to diagnose learning needs, comply with curriculum requirements and support colleagues to evaluate the effectiveness of their approaches to assessment.	Evaluate school assessment policies and strategies to support colleagues with using assessment data to diagnose learning needs, complying with curriculum, system and/or school assessment requirements and using a range of assessment strategies.
Focus area 5.2 – Provide feedback to students on their learning			
Demonstrate an understanding of the purpose of providing timely and appropriate feedback to students about their learning.	Provide timely, effective and appropriate feedback to students about their achievement relative to their learning goals.	Select from an effective range of strategies to provide targeted feedback based on informed and timely judgements of each student's current needs in order to progress learning.	Model exemplary practice and initiate programs to support colleagues in applying a range of timely, effective and appropriate feedback strategies.
Focus area 5.3 – Make consistent and comparable judgements			
Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning.	Understand and participate in assessment moderation activities to support consistent and comparable judgements of student learning.	Organise assessment moderation activities that support consistent and comparable judgements of student learning.	Lead and evaluate moderation activities that ensure consistent and comparable judgements of student learning to meet curriculum and school or system requirements.
Focus area 5.5 – Report on student achievement			
Demonstrate understanding of a range of strategies for reporting to students and parents/carers and the purpose of keeping accurate and reliable records of student achievement.	Report clearly, accurately and respectfully to students and parents/ carers about student achievement, making use of accurate and reliable records.	Work with colleagues to construct accurate, informative and timely reports to students and parents/carers about student learning and achievement.	Evaluate and revise reporting and accountability mechanisms in the school to meet the needs of students, parents/ carers and colleagues.

**Appendix 2 Survey Items With Response Options**

Item Number	Item	Options
1	Age (choose one)	20-25
2		26-30
3		31-35
4		36-40
5		41+
6	Gender (choose one)	Male
7		Female
8		Non-binary
9		Prefer not to say
10	Teacher registration status (choose one)	Not yet registered
11		Provisionally registered
12		Fully registered
13	How many years have you been teaching? (choose one)	0-1
14		2-3
15		3-4
16		4-5
17		6+
18	Postcode of the school where you work (type the four-digit postcode)	
19	The location of the school would best be described as (choose one)	Metropolitan
20		Regional
21		Rural/Remote
22	Type of school (choose one)	Public/State
23		Catholic
24		Independent
25	Number of students enrolled (choose one)	<100
26		101-200
27		201-300
28		301-500
29		501-800
30		801-1000
31		1001+
32	Teaching Area 1 (choose one)	English
33		Maths
34		Science
35		Humanities and Social Sciences
36		Technologies
37		Health and Physical Education
38		The Arts
39		Languages
40		Work Studies
41	Have you taught in this teaching area? (choose one)	Yes
42		No
43	Number of staff who teach into this teaching area (choose one)	Just me
44		2
45		3-4
46		5-9
47		10 or more
48		The school does not offer my first teaching area
49	Teaching Area 2 (choose one)	English
50		Maths
51		Science
52		Humanities and Social Sciences
53		Technologies
54		Health and Physical Education
55		The Arts
56		Languages
57		Work Studies

Item Number	Item	Options
13	Have you taught in this teaching area? (choose one)	Yes No
14	Number of staff who teach into this teaching area (choose one)	Just me 2 3-4 5-9 10 or more The school does not offer my first teaching area
15	Have you taught outside your teaching areas? (choose one)	Yes No
16	Please identify the statement(s) that apply to your experiences in your initial teacher education (ITE) degree: (choose as many as apply)	I had multiple courses devoted entirely to summative assessment in my ITE degree, I had multiple courses devoted to assessment in my ITE degree, I had one course devoted to summative assessment in my ITE degree, I had one course devoted to assessment in my ITE degree, I had some explicit teaching of summative assessment within multiple courses across my ITE degree, I had some explicit teaching of summative assessment within one other course in my ITE degree, I had no explicit teaching of summative assessment throughout my ITE degree
17	In terms of your knowledge and skills regarding summative assessment during your ITE degree, please rate the extent to which you agree with the following statements: (choose one) I was taught how to interpret existing summative assessment items	
18	I was taught how to mark according to an existing summative assessment rubric	Strongly disagree Disagree Neither agree nor disagree
19	I was taught how to modify existing task sheets to suit my context or students	Agree Strongly agree
20	I was taught how to modify existing rubrics to suit my context or students	
21	I was taught how to create new summative assessment task sheets	
22	I was taught how to create new summative assessment rubrics	
23	Thinking about your knowledge and skills in creating summative assessment <b>task sheets</b> at graduation: (choose one) I knew what was necessary to include in a task sheet	Strongly disagree Disagree Neither agree nor disagree
24	I could identify a well-constructed task sheet	Disagree Neither agree nor disagree
25	I could explain why a task sheet was well- or poorly constructed	Agree Strongly agree
26	I could identify how to improve a poorly constructed task sheet	
27	I could make improvements to a poorly constructed task sheet	

Item Number	Item	Options
1		
2	Thinking about your knowledge and skills in creating summative assessment	
3	<b>rubrics</b> at graduation: (choose one)	
4		
5	28 I knew what was necessary to include in a rubric	Strongly disagree
6		Disagree
7	29 I could identify a well-constructed rubric	Neither agree nor disagree
8		Agree
9	30 I could explain why a rubric was well- or poorly constructed	Strongly agree
10		
11	31 I could identify how to improve a poorly constructed rubric	
12		
13	32 I could make improvements to a poorly constructed rubric	
14	Thinking about your knowledge and skills in creating summative assessment	
15	<b>task sheets now</b> , please indicate the extent to which you agree with the following statements: (choose one)	
16		
17		
18		
19	33 I know what is necessary to include in a task sheet	Strongly disagree
20		Disagree
21	34 I can identify a well-constructed task sheet	Neither agree nor disagree
22		Agree
23	35 I can explain why a task sheet is well- or poorly constructed	Strongly agree
24		
25	36 I can identify how to improve a poorly constructed task sheet	
26		
27	37 I can make improvements to a poorly constructed task sheet	
28		
29	Thinking about your knowledge and skills in creating summative assessment	
30	<b>rubrics now</b> , (choose one)	
31		
32	38 I know what is necessary to include in a rubric	
33		
34	39 I can identify a well-constructed rubric	
35	40 I can explain why a rubric is well- or poorly constructed	
36		
37	41 I can identify how to improve a poorly constructed rubric	Strongly disagree
38		Disagree
39	42 I can make improvements to a poorly constructed rubric	Neither agree nor disagree
40		Agree
41	Please identify your thoughts on the following statements at this point in your career; (choose one)	Strongly agree
42		
43	43 I am confident in my knowledge of what makes an effective piece of summative assessment	
44	44 I am confident in my ability to create an effective task sheet	
45	45 I am confident in my ability to create an effective rubric	
46		
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49		
50	Please match each description to the most applicable principle of summative assessment (choose one)	
51		
52	43 The assessment item is strongly aligned to the curriculum requirements as well as what has been taught (validity)	
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Item Number	Item	Options
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2	44	The task and rubric have been written in such a way that objective and defensible marking of the task can take place, no matter who marks it or when it is marked (reliability)
3		
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6	45	The assessment item has real-life meaning to the student (authenticity)
7		
8	46	The student has some choice in either topic or presentation mode (flexibility)
9		
10	47	There is freedom from bias and each student has an equitable chance to succeed in the assessment item (fairness)
11		
12		
13		
14	48	How many opportunities have you had to create a summative assessment <b>task sheet</b> since graduating? (choose one)
15		0
16		1
17		2-3
18		4-5
19		6 or more
20		
21		
22		
23	49	Thinking now about your teaching career up to this point regarding summative assessment <b>task sheets</b> in your classes, (choose one)
24		
25	50	I have had the opportunity to teach the unit/s leading up to the SA
26		Never
27		Rarely
28		Sometimes
29		Mostly
30		Always
31	51	Before I gave the task sheet/s to my class, someone looked over it and provided me with feedback or suggested improvements
32		N/A
33	52	My task sheet/s improved as a result of the feedback
34		
35		
36		
37		
38		
39		
40	53	The position/s of the person/people who looked over my task sheet/s were (choose all that apply)
41		No one
42		Head of department
43		Head of curriculum
44		Deputy principal
45		Senior colleague
46		Another beginning teacher
47		Teacher aide
48		Friend or family member
49		N/A
50		
51		
52		
53		
54	54	If you have not had the opportunity to create a summative assessment task sheet, please indicate why (choose as many as applicable)
55		I have not been asked
56		We have used existing task sheets and therefore no new task sheets have been written in my teaching areas
57		I offered to create a task sheet, but was declined
58		I have been asked, but turned down an offer due to time
59		I have been asked, but turned down an offer due to low self-confidence
60		Other
61		N/A – I have created summative assessment task sheets
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Item Number	Item	Options
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2		0
3	55	1
4	How many opportunities have you had to create a summative assessment rubric? (choose one)	2-3
5		4-5
6		6 or more
7	Thinking now about your teaching career up to this point regarding summative assessment rubrics in your classes, (choose one)	
8	56	
9	I have had the opportunity to teach the unit/s leading up to the SA	Never
10		Rarely
11	57	Sometimes
12	Before I gave the rubric/s to my class, someone looked over it and provided me with feedback or suggested improvements	Mostly
13		Always
14	58	N/A
15	My rubric/s improved as a result of the feedback	
16	59	No one
17	The position/s of the person/people who looked over my rubric/s were (choose all that apply)	Head of department
18		Head of curriculum
19		Deputy principal
20		Senior colleague
21		Another beginning teacher
22		Teacher aide
23		Friend or family member
24		N/A
25	60	I have not been asked
26	Can you briefly identify why you have not had the opportunity to create a summative assessment rubric? (choose as many as applicable)	We have used existing rubrics and therefore no new rubrics have been written in my teaching areas
27		I offered to create a rubric, but was declined
28		I have been asked, but turned down an offer due to time
29		I have been asked, but turned down an offer due to low self-confidence
30		Other
31		N/A – I have created summative assessment rubrics
32	61	Strongly disagree
33	I would have liked the opportunity to create a summative assessment rubric since becoming a teacher (choose one)	Disagree
34		I'm not sure
35		Agree
36		Strongly agree
37		N/A
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46	62	
47	Please identify your thoughts on the following statements at this point in your career; (choose one)	
48	I would like more opportunities to create a summative assessment task sheet	
49	63	Strongly disagree
50	I would like more opportunities to create a summative assessment rubric	Disagree
51		I'm not sure
52		Agree
53		Strongly agree
54	64	
55	I would like more opportunities to receive feedback on my task sheet	
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Item Number	Item	Options
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2	65	I would like more opportunities to receive feedback on my rubric
3		
4	66	I feel as though my theoretical knowledge in how to create summative assessment has increased since graduation
5		
6		Strongly disagree
7		Disagree
8	67	I feel as though my skills in creating summative assessment have increased since graduation
9		I'm not sure
10		Agree
11	68	I feel as though my confidence to create summative assessment has increased since graduation
12		Strongly agree
13		
14		Please identify your thoughts on the following statements at this point in your career,
15		
16	69	In order to improve my summative assessment, I need more knowledge and skills
17		
18	70	In order to improve my summative assessment items, I need more confidence
19		Strongly disagree
20		Disagree
21	71	In order to improve my summative assessment items, I need more practice
22		I'm not sure
23	72	In order to improve my summative assessment items, I need more feedback
24		Agree
25		Strongly agree
26		
27	73	In order to improve my summative assessment items, I need a combination of all of these (knowledge, skills, confidence, practice and feedback)
28		
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31		Have you undertaken any professional development on summative assessment creation since graduation? (choose one)
32		
33	74	One-off professional development up to one day in duration
34		
35	75	Multiple discrete professional development sessions up to one day in duration
36		
37		
38	76	An internal short course delivered in person
39		No
40	77	An external short course delivered in person
41		No but I'd like to
42	78	A self-paced online course
43		I'd like to but have not been able or approved to do it
44	79	Ongoing external training on a regular basis
45		Yes, it was self-directed
46		Yes, it was directed by the school
47	80	Ongoing training from an internal staff member on a regular basis
48	81	An ongoing mentoring relationship with a more experienced colleague
49	82	Informal conversations with a more experienced colleague when needed
50		
51		Would you like to tell us anything else about your summative assessment experiences either during your initial teacher education degree or since becoming a practicing teacher? For example, your opportunities may have changed with changing school, or as you take on a role with more responsibility, etc. (free response)
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**Appendix 3**

*Items Contributing to Each Factor*

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Factor	Item
1 (Competence)	I was taught how to interpret existing summative assessment items
	I was taught how to mark according to an existing summative assessment rubric
	I was taught how to modify existing task sheets to suit my context or individual students
	I was taught how to modify existing rubrics to suit my context or individual students
	I was taught how to create new summative assessment task sheets
	I was taught how to create new summative assessment rubrics
	At graduation, I knew what was necessary to include in a task sheet
	At graduation, I knew what was necessary to include in a rubric
	At graduation, I could identify a well-constructed task sheet
	At graduation, I could identify a well-constructed rubric
	At graduation, I could explain why a task sheet was well- or poorly constructed
	At graduation, I could explain why a rubric was well- or poorly constructed
	At graduation, I could make improvements to a poorly constructed task sheet
At graduation, I could make improvements to a poorly constructed rubric	
2 (Confidence)	Now, I can identify a well-constructed task sheet
	Now, I can explain why a task sheet is well- or poorly constructed
	Now, I can make improvements to a poorly constructed task sheet
	Now, I know what is necessary to include in a task sheet
	Now, I can explain why a rubric is well- or poorly constructed
	Now, I know what is necessary to include in a rubric
	Now, I can identify a well-constructed rubric
	Now, I can make improvements to a poorly constructed rubric
My confidence in creating summative assessment has improved since graduation	
My theoretical knowledge of summative assessment has improved since graduation	
(3) Opportunity	I would like more opportunities to create task sheets
	I would like more opportunities to create rubrics
	I would like more opportunities to receive feedback on task sheets
	I would like more opportunities to receive feedback on rubrics

**Appendix 4**

*Means, Standard Deviations and Reliabilities for each Factor*

Factor	N of items	M	SD	$\alpha$
Competence	14	4.053	.698	.952
Confidence	10	3.206	.928	.925
Opportunity	4	3.713	.811	.899

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### 6.3 Links and Implications for Paper 4

*Demystifying the creation of effective summative assessment by early career teachers: What do they really think?* explored the investigations undertaken regarding the perceived proficiency of early career teachers in creating and implementing summative assessment, addressing the four research sub-questions. The paper began by highlighting the diverse roles of assessment in education, emphasising its pivotal role in informing teaching and learning processes. This was followed by an exploration of the experiences of early career teachers, beginning with their experiences of their preparation for assessment in ITE programs. Findings revealed concerns about explicit teaching in summative assessment, with 4% of programs lacking such instruction.

Despite varied opportunities post-graduation, there was a notable positive correlation between the composite items of Opportunities to create and implement summative assessment, with Competence in creating summative assessment, and Confidence in skills and knowledge over time. The discussion underscored the importance of early opportunities for fostering positive associations between the composite items of Competence and Confidence. However, a dissonance was noted where participants desired more Opportunities to create and receive feedback on summative assessment, but exhibited limited interest in formal professional development, preferring ongoing, relationship-based learning.

This paper presented the early career teachers' views on their experiences with summative assessment creation and desires for additional support or professional development. It was the final puzzle piece to be added to the research and from here overall conclusions regarding each research sub-question could be drawn on the original research question for this PhD thesis: *What do early career*

*junior secondary teachers in Queensland need (if anything) to become effective creators of summative assessment?*

The following, final chapter will draw links between each of the four papers in relation to the research questions, present the contributions made by this study, identify the limitations acknowledge and also indicate where future research may continue in this area.

# CHAPTER 7: CONCLUSION

## 7.1 Introduction

In the final chapter of this thesis, key findings from the four publications are synthesised and the research project's conclusions are presented. As this has been a thesis by publication, each paper already includes a discussion section which draws together findings and recommendations from each paper. Therefore, this chapter considers each research question in terms of all data gathered and combines each paper's contribution to present a conclusion of what has been found during this study as a whole. Limitations of this study are briefly identified, followed by recommendations for future research. Throughout the chapter, I have additionally woven personal reflections of my evolution as a researcher through my PhD journey as part of the overall story of this research and its culminating contributions to the field.

## 7.2 Overview of the Research Project

This research began with personal and professional experience. A significant struggle as an early career teacher was with creating summative assessment. Looking back now, even though I could not articulate it, I recognise I lacked the knowledge, skills, and confidence at graduation from my ITE program to create effective summative assessment. I had more opportunities to create assessment that I wanted in my first years of teaching, due to my first school being in a regional area with a small population and no other staff in my teaching area. Although the opportunities afforded to me to create assessment contributed towards more effective task development (Edwards, 2017), I always felt I needed *more* knowledge, *more* skills, and guidance from someone from whom I could learn.

My teaching focus in tertiary education in an assessment course, coupled with the changes to the senior secondary years of education in Queensland in 2019 only strengthened my recognition of the value of further research into this domain and culminated in this study in which I sought to understand: *What do early career junior secondary teachers in Queensland need (if anything) to become effective creators of summative assessment?* To support early career teachers in their creation of summative assessment I needed to know:

1. What early career teachers knew and could do upon graduation from their ITE program.
2. What experiences early career teachers had been given to create summative assessment while still in the Graduate career stage (QCT, 2023).
3. How early career teachers felt about creating summative assessment.
4. If early career teachers wanted to improve their assessment creation; and if so,
5. How early career teachers would like to improve.

This doctoral study therefore sought to explore the views and experiences of early career junior secondary teachers in relation to teacher-created summative assessment, with a particular focus on what support (if any) they needed to create and implement effective summative items.

The project has been presented as a thesis by publication, with key stages of the research presented through four publications and additional explanations linking the four manuscripts to demonstrate how each contributes to the thesis' overarching goals. An overview of each paper and how it connects to the larger research project is shown in Table 7.1.

**Table 7.1***Overview of the Four Papers and Their Connection to the Study*

Paper Number	Connection to the study as a whole
<b>Paper 1 (Chapter 2)</b> Systematic Literature Review leading to Quality Indicators of Effective Teacher-Created Summative Assessment	A clearly defined set of quality indicators that provide an empirically-based criteria for “effective assessment” was presented.
<b>Paper 2 (Chapter 3)</b> Conceptual Paper presenting the existing research leading to my conceptual framework	A conceptual framework was developed and justified which underpinned the study as a whole, and which was rooted in existing research.
<b>Paper 3 (Chapter 5)</b> Results of an Exploratory Factor Analysis which provided initial empirical support for a three-factor model of the conceptual framework	Empirical support of the conceptual framework was developed through analysis of data.
<b>Paper 4 (Chapter 6)</b> Results from the survey, which presented early career teachers’ views and experiences in summative assessment creation	The results from the survey gave practical support for the conceptual framework. Participant responses, particularly those focused on desires for the future, echoed both the EFA and proposed conceptual framework.

It was my intention to structure the publications as both a series of articles, taking readers on a journey through my doctoral study, as well as stand-alone articles which provided new insights to the field of summative assessment creation individually. Careful planning of these articles was therefore imperative. It was important that each article had something new to contribute, with minimal repetition in each paper’s introduction and review of the literature. Obviously, there would be some overlap due to the context and background of the study, which needed to be stated in each article; however, repetition was avoided as much as possible.

As can be seen in Table 7.1, each paper had a different focus using different research questions to establish their specific contribution. The development and

submission of publications throughout the process of the research journey has meant that evolutions in my thinking are documented in the various publications, which is evident when reading the articles in succession. An example of this is evident in Paper 2, where the concept of *capacity* was identified, which was later updated to *competence*. Additionally, as a result of findings reported in Paper 3, *Confidence* was added as a demonstrated factor to the conceptual framework. The final process of writing the connecting thesis chapters has represented a fascinating journey, revealing my growth in thinking and evolution of my understanding of the existing research problem and research process. It is satisfying to know that this journey of research has produced two tangible contributions in the field:

1. A set of quality indicators of effective teacher-created summative assessment;  
and
2. A practice framework for the improvement of teacher-created effective summative assessment.

These contributions are now presented, with explanations regarding how the study has responded to the original research question (and sub-questions) of this study.

### **7.3 Contribution 1 – Quality Indicators of Effective Teacher-Created Summative Assessment**

Although not directly addressing one of the research questions set for this study, this paper formed an important foundation for the study by filling a gap in the literature regarding an empirically grounded definition of effective teacher-created summative assessment.

Paper 1 involved more than just compiling existing definitions of terms like “good”, “effective” or “quality” in relation to teacher-created summative assessment

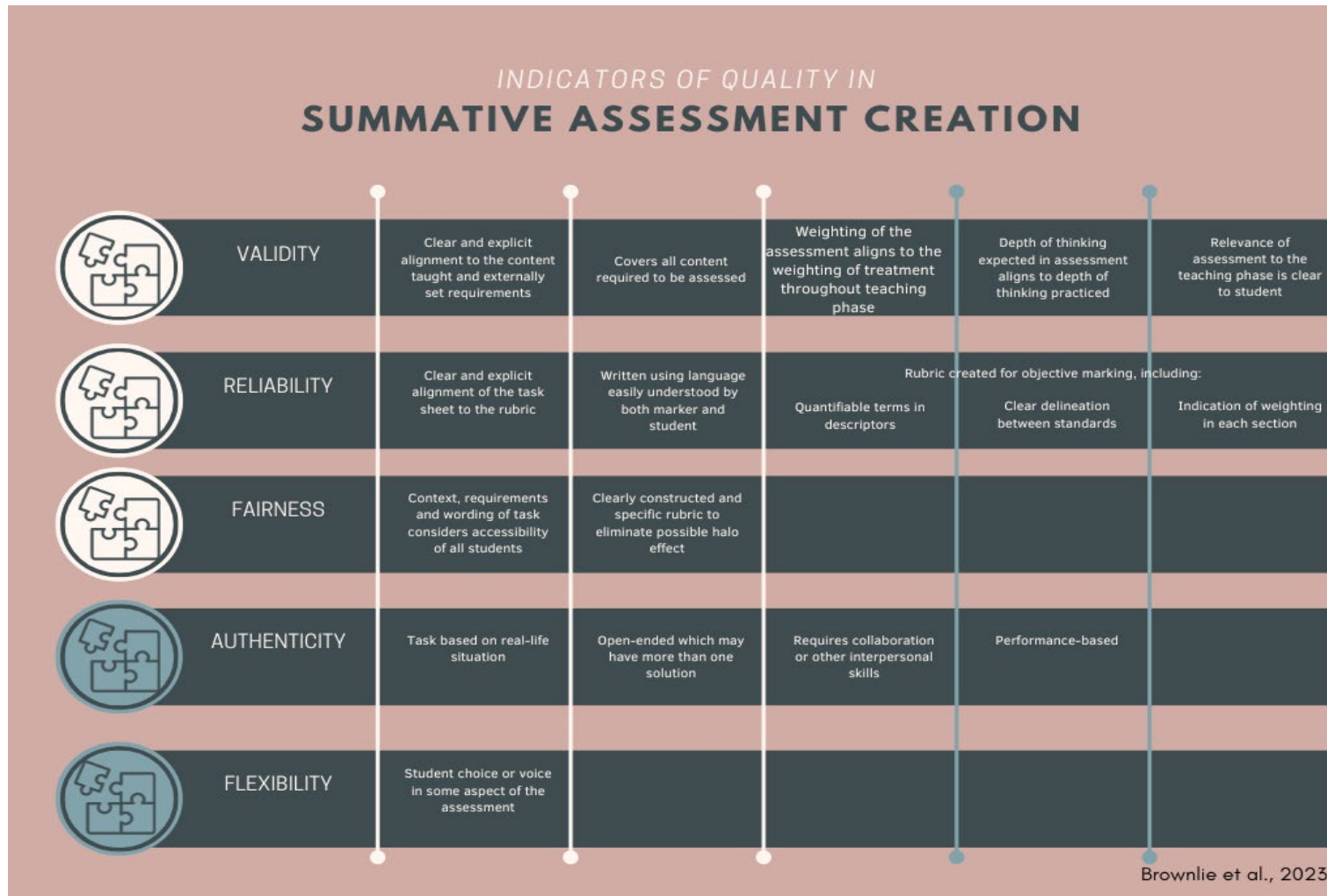


found in the literature. It also entailed analysing and synthesising what was left unaddressed. Some papers, in their pursuit of improving assessment practices, omitted explicit definitions of what characteristics the resultant summative assessment should display.

This contribution of an empirically determined definition of effective teacher-created summative assessment was necessary, not only to this study, but to the wider body of literature on summative assessment in contexts where classroom teachers are tasked with the responsibility of creation. The paper not only presented an empirically based definition on what constitutes effectiveness in an item of summative assessment, but further offered a set of quality indicators. The quality indicators proposed were a set of questions a teacher may either consider as they plan an item of assessment, or a “checklist” to assure themselves and other stakeholders of the quality of a created item (see Figure 7.1).

**Figure 7.1**

*Indicators of Quality in Summative Assessment Creation*



#### **7.4 Contribution 2 – Practice Framework for the Improvement of Teacher-Created Effective Summative Assessment**

Paper 2 originally presented the practice framework as a conceptual framework, based on what the extant literature identified as factors in improving summative assessment. Some studies (e.g., Fan et al., 2001; Mertler, 2009; Ogan-Bekiroglu & Suzak, 2014) showed that an improvement in knowledge and skills led to improved summative assessment, and others showed that increased opportunities led to improved summative assessment (e.g., Biesta, 2017; DeLuca & Johnson, 2017; Lovett & Cameron, 2011). In Paper 2, I proposed that it was, in fact, a combination of the two which would lead to the resulting summative assessment being more effective than an improvement in one factor alone.

In Paper 3, I then went on to determine if the proposed conceptual framework could be supported empirically through an exploratory factor analysis to reduce and group the scale items in the survey. The results of the EFA essentially supported the framework; however, it showed that confidence, previously combined as the predominant attitude within the definition of competence, was a robust factor on its own. This led to a modified framework. The results of the survey were then considered according to this modified framework to determine whether this framework had implications for practice.

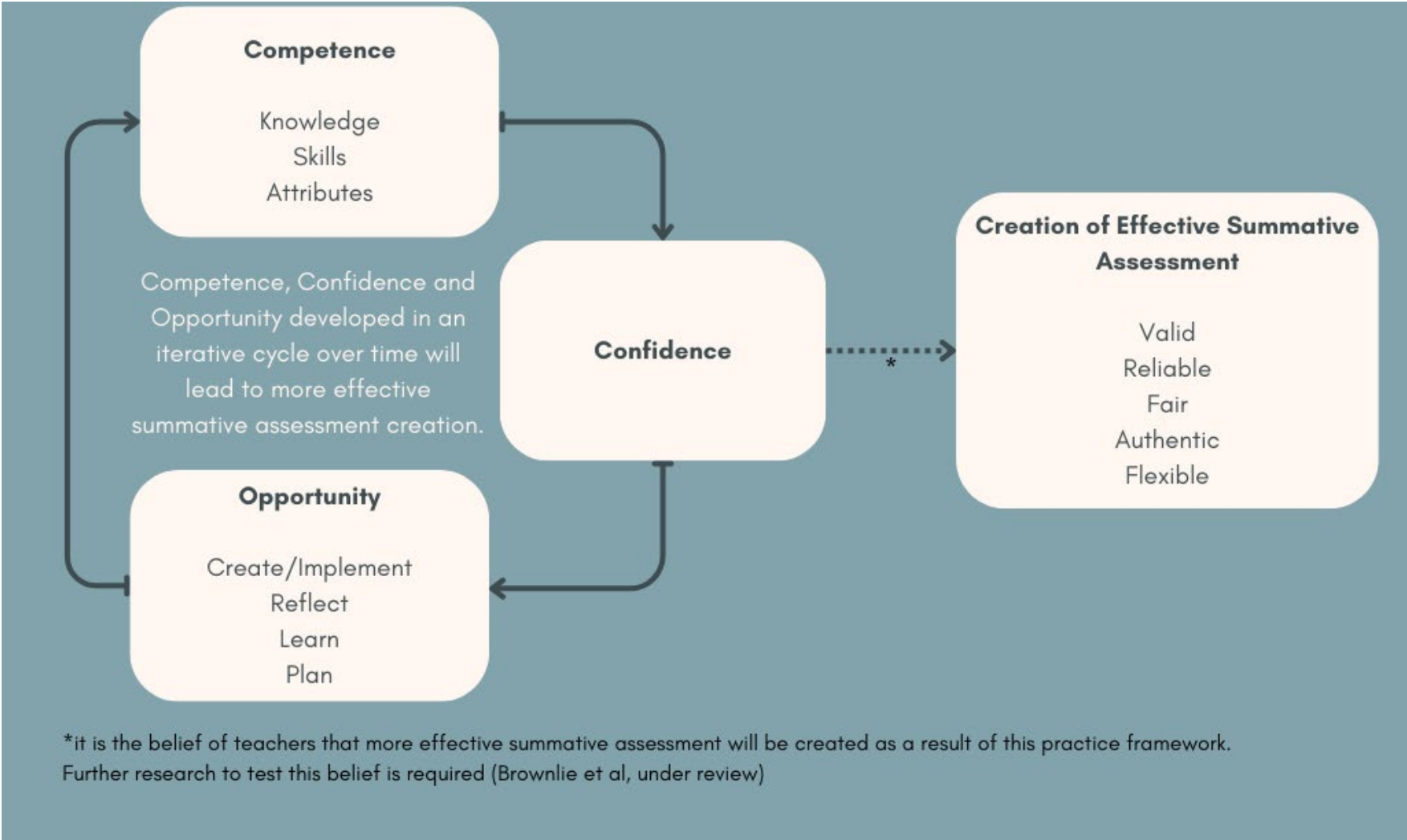
Paper 4 confirmed that early career teachers did, in fact, express thoughts that an increase in their Competence, Confidence and Opportunity would lead to an improvement in the quality of their summative assessment creation. Further, when participants were asked to consider the professional development that was most desired or already undertaken, it was revealed that early career teachers wanted to improve these over time. One-off opportunities to gain competence, confidence or

opportunities were not highly desired; rather, continuous, context-specific professional development such as an ongoing mentoring relationship, ongoing training from someone within the school or the opportunity to simply ask questions as they arose were strongly sought after.

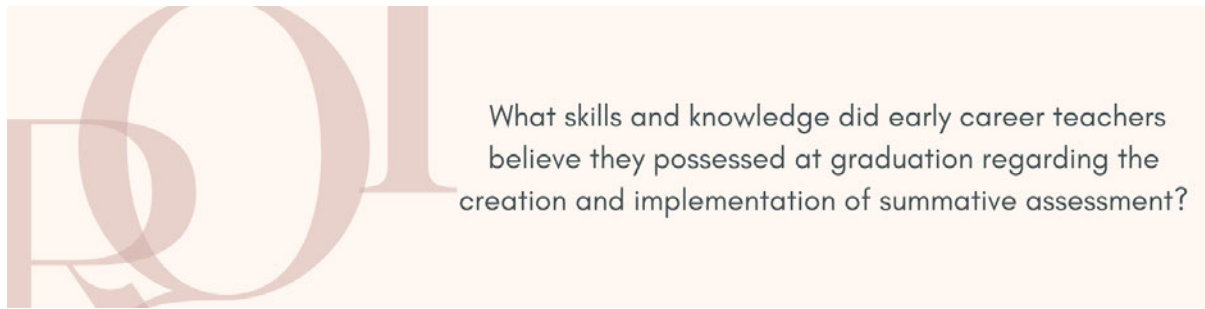
As a result of this study, the presentation of a practice framework for the improvement of teacher-created summative assessment (Figure 7.2) is a contribution to theory, with implications for practice.

**Figure 7.2**

*Practice Framework for the Improvement of Teacher-Created Effective Summative Assessment*



## 7.5 Response to Research Sub-Question 1



The survey asked early career teachers about specific skills and knowledge required for the successful creation and implementation of summative assessment in the teaching profession. These questions were based on the literature regarding the knowledge (for example Five & Barnes, 2020; Brookhart, 1997; Imlig & Ender, 2018; Baird et al., 2017) and skills (for example QCAA, 2023; Murchan & Shiel, 2017; Wiggins & McTighe, 2005; AITSL, 2011) identified as being imperative for a teacher to be deemed competent in summative assessment creation. The results to this sub-question were addressed most specifically in Paper 4 and Chapter 6.

The results of this study in addressing research sub-question 1 begin to address Volante and Fazio's (2007) recommendation for future research into understanding the assessment literacy of classroom teachers, as well as Ogan-Bekiroglu and Suzak's (2014) provocation to consider the relationship between pre-service education and candidate assessment efficacy.

Volante and Fazio (2007) defined assessment literacy as "an understanding of the principles of sound assessment" (p. 750). The outcomes of the systematic literature review in Paper 1 make an important contribution by clearly identifying principles of effective summative assessment, thus providing a definitive foundation which was lacking. My survey asked participants to match definitions to each principle of effective summative assessment, and the findings revealed a generally sound understanding, nonetheless with inconsistencies in early career teacher

theoretical understanding of the principles constituting effective summative assessment. Therefore, responding to Volante & Fazio (2007), the research reported in Paper 4 has identified a beginning level of understanding the assessment literacy, certainly of early career teachers. The results of this research have revealed the need to focus efforts on increasing the assessment literacy (termed Capacity in my study) of early career classroom teachers.

Turning to Ogan-Bekiroglu and Suzak's (2014) proposal that the relationship between pre-service education and candidate assessment efficacy be explored, Chapter 6 provided some initial insight. It was revealed that the only skill taught in ITE programs that has significant impact on the Confidence of early career teachers in assessment was how to interpret summative assessment. All other skills taught in ITE were shown to not affect Confidence; rather, the opportunities and skills developed while teaching had more effect. This result provides further justification for the need for the *Practice Framework for the Improvement of Teacher-Created Summative Assessment* (hereafter referred to as the *Practice Framework*) to be created (Figure 7.2).

Overall, this research has revealed that early career teachers generally did not feel highly confident, nor diffident in any of the knowledge or skills taught in ITE programs at graduation. Cameron and colleagues exhort the importance of teacher knowledge as "one of the most critical factors influencing student achievement and [that it] plays a vital role in the learning process" (2013, p. 377). This research therefore provides valuable insights that might underscore future policy and practice by providing early career teachers with the opportunity to develop their knowledge and skills early in their career, given the evidence that they do not feel fully equipped to create summative assessment upon graduation.

## 7.6 Response to Research Sub-Question 2



This study has revealed that there are multiple opportunities available across Queensland for early career teachers to create, implement and receive feedback on summative assessment. However, the experiences of participants were vastly different. Although not confirmed, correlation and descriptive analysis indicated this may be due to location, population of school, leadership and/or whether a formal mentoring program for early career teachers had been established.

Paper 2 identified that the concept of opportunities for practicing summative assessment creation includes not only the chance to create summative assessment, but also participate in professional development within the initial years of practice. The survey asked early career teachers questions regarding the number of times they had been given the opportunity to create a task sheet, rubric, taught the subjects for which they had written the summative assessment, and professional development opportunities offered and taken up. As expected in a context as diverse as Queensland (particularly in relation to geographical remoteness and population of school), the opportunities to create and implement summative assessment were varied, indicating a lack of consistency in supporting early career teachers in the creation of summative assessment.

The factor of Opportunity did not correlate significantly with either Competence or Confidence in Paper 3. Thus, although a factor in creating effective summative assessment, Opportunity does not seem to be directly impacted by the

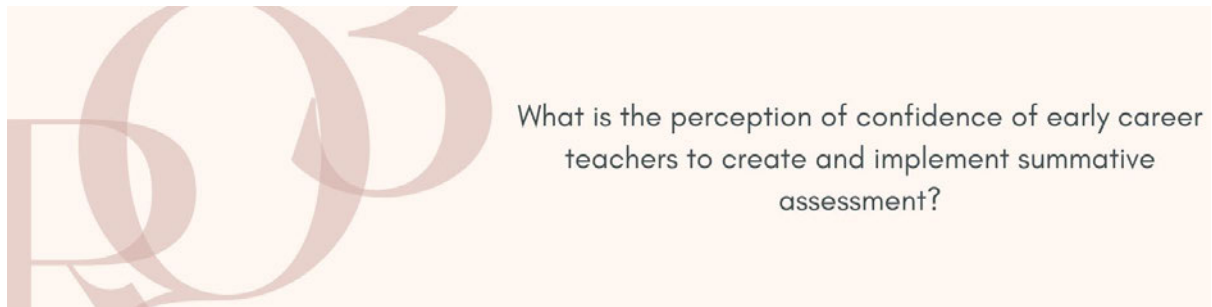


increase in Competence or Confidence. However, the research reported in Paper 4 clearly revealed that early career teachers were exposed to opportunities, albeit varied and disparate.

The results of this study in response to this research sub-question have identified that the formal program proposed by “Graduate to Proficient: Australian guidelines for teacher induction into the profession” (AITSL, 2016) is not currently implemented Queensland-wide. If this program was being implemented across the state, responses to questions about opportunities to create assessment and practice-focused professional development would be anticipated to be more consistent, due to similar opportunities being presented and undertaken statewide. This study’s results have supported contemporary research on teacher professional development (such as Darling-Hammond et al., 2017; Evans, 2019; and Keay et al., 2019) which suggests that “good teacher professional learning is: differentiated; contextualised; connected to teachers’ problems of practice, curiosities and prior knowledge; collegial and collaborative; and encouraging of risk taking and experimentation” (Mockler, 2022, p. 170).

This study has thus contributed to the body of knowledge by bringing to light the disparity in opportunities for early career teachers in Queensland to create and implement summative assessment while still at the Provisional career stage. Opportunity, as evidenced by Papers 3 and 4, is a significant factor in improving the quality of teacher-created summative assessment and is therefore vital to the development of early career teacher assessment literacy.

## 7.7 Response to Research Sub-Question 3



The factor of Confidence in the creation and implementation of summative assessment has been revealed as instrumental in effective summative assessment creation as a result of this study. At the commencement of my research, the concept of confidence was acknowledged in literature as important; however, it was included as the prevailing attribute within the concept of competence (defined as knowledge, skills and attributes required to do a particular task – see Chapter 2). Papers 3 and 4 revealed the factor of Confidence to be a more important requirement for early career teachers creating and implementing effective summative assessment than previously identified in the literature. As a result of this study, Confidence has been identified as an essential third factor, along with Competence and Opportunity, that are integral to the effective creation of summative assessment.

The results from Paper 4 provided further evidence to support the *Practice Framework*, which was developed through findings presents in Paper 3 (Figure 7.2). Strong, statistically significant correlations were found to exist between Competence and Confidence.

The response to this research question, possibly more than the others, has significant implications for future research to be undertaken. The inclusion of Confidence has contributed to current knowledge by identifying the importance of belief in one's abilities to begin, persevere through and complete the creation of effective summative assessment. Confidence cannot be overlooked, with only

Competence and Opportunity considered when looking to improve an early career teacher's assessment literacy. This new knowledge has practical implications also. By considering Confidence in the *Practice Framework* (Figure 7.2), a more direct focus by those implementing the framework may be placed on supporting the development of confidence in teachers while in the Provisional career stage.

## 7.8 Response to Research Sub-Question 4



Literature exists on what is “best” for early career teachers, how to “best” improve assessment in some form and what “should” happen to support professional development. However, there has been a discernible gap in understanding the specific needs and preferences of early career teachers to support their improvement in summative assessment creation.

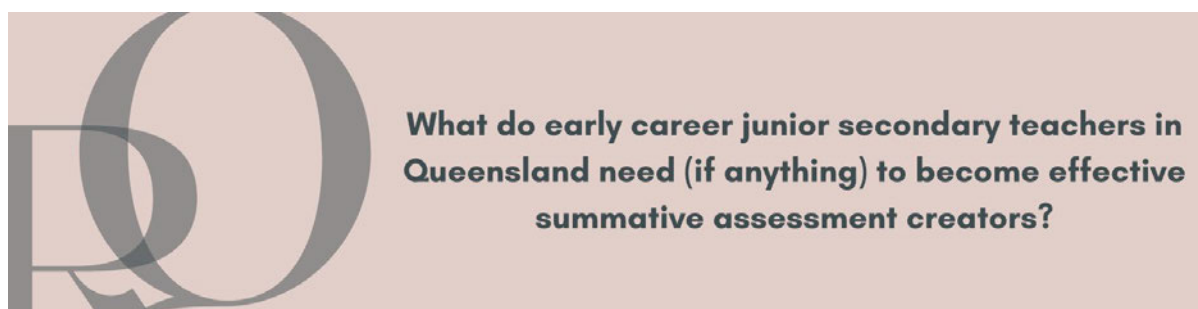
The study began with an identification of a misalignment between the skills and knowledge with which a graduate teacher enters the profession and the assumptions from more experienced teachers of the “entry level skills and knowledge” with which a graduate *should* enter the profession. As such, this final research sub-question was both interesting and important to the study. It was unknown whether early career teachers would feel as though they needed anything (knowledge, skills, opportunities, or confidence) so soon after four years (at least) of tertiary study. The study revealed that early career teachers were predominantly united in their responses to this research question, indicated in Paper 4. There was a clear

preference revealed for context-specific, just-in-time, and personalised professional development as it relates to summative assessment creation.

Participants had either already engaged in, or wanted to engage in, a mentoring relationship with a senior colleague, ongoing informal conversations as required, or participate in regular internal training by a senior colleague. The results from the participants confirm what contemporary literature identifies as “best-practice professional development” – “differentiated; contextualised; connected to teachers’ problems of practice, curiosities and prior knowledge; collegial and collaborative” (Mockler, 2022, p. 170). Therefore, not only is ongoing, relational, context-specific professional development stated as best practice; but contemporary early career teachers in Queensland prefer this over other, more formal formats available.

The results of this study have shown how schools in Queensland can create an environment for early career teachers to improve skills in a way which promotes confidence, thus addressing Ewing & Manuel’s recommendation of the need to “hear the voices of new teachers” (2005, p. 13). The *Practice Framework* (Figure 7.2) provides flexibility for early career teachers to choose how they improve their Competence, Confidence and Opportunities. However, the voices of these early career teachers, as expressed in my study, strongly advocate for a sustained focus on enhancing Competence, Confidence and Opportunities over an extended period of time.

## 7.9 Response to the Overarching Research Question



The two contributions—*Quality Indicators of Effective Teacher-Created Summative Assessment* (Figure 7.1) and the *Practice Framework* (Figure 7.2) represent an empirically-grounded response to the overarching research question for this study. Queensland secondary early career teachers' voices were heard through an anonymous online survey. The feedback indicated a need for opportunities to enhance Competence (theoretical knowledge and skills), Confidence, and Opportunities to create and implement summative assessment with high levels of validity, reliability, fairness, authenticity, and flexibility. Importantly, the two contributions derived from this study are not limited to early career teachers or exclusively applicable to secondary teachers. These contributions can be beneficial to teachers at various career stages, spanning primary and secondary education. With minor adjustments, they may also find utility in tertiary institutions or educational contexts in other countries where teachers are involved in creating their own summative assessments.

Papers 2–4 provide contribution to knowledge in the area of summative assessment creation by disseminating the key aspects of this study in the public domain, accessible by any interested party. Paper 1, concluding with the creation of a set of quality indicators, provides a theoretical contribution, with implications for practice. Secondary teachers with whom I've worked with in Queensland are already beginning to use these quality indicators as a guide when planning and creating

summative assessment. Likewise, the *Practice Framework* (Figure 7.2) provides a contribution to theory with implications for practice. This empirically grounded presentation of an iterative process for ongoing professional development over time, allows early career teachers to develop their theoretical knowledge and skills, building confidence to then create, implement, reflect, learn, and plan summative assessment. This process will further develop new theoretical knowledge, initiating a deeper level of understanding.

### **7.10 Limitations of the Study**

Like many, COVID-19 unexpectedly changed the course of my research journey. I had originally planned an exploratory sequential mixed methods study for this topic; beginning with interviews with early career teachers to hear their experiences first-hand. This was to be followed by a document analysis of an example of their summative assessment to determine whether their understanding of effective summative assessment creation was aligned with their actual practice. Finally, the survey would be administered to determine whether the experiences of interviewees were confirmed by a larger population of early career teachers in Queensland. Lockdown had a considerable impact on teachers, who not only had to adjust to a life of lockdown for themselves and their families, but still had to somehow continue to teach. Many had to learn how to prepare and deliver content solely online, as well as experiment with new pedagogies to keep their students engaged. Understandably therefore, any responsibility that was not completely necessary was either cancelled or postponed indefinitely, and this was often enforced by schools, meaning research activity with many schools was mandated to halt.

Therefore, after waiting (and thinking that COVID-19 would be over in the next week or month!) my supervisors and I made the decision to rework the scope of my study by limiting my data collection to online survey only in order to respect the time of teachers, focusing on a more extensive quantitative analysis of this data. At this time, I reconsidered my study in its entirety and pivoted in how to approach the topic from a different perspective. A time of reflection allowed me to re-plan and become clear in my methodological approach and include more comprehensive quantitative analysis. It is recognised that qualitative insights through interviews and document analysis may have revealed greater insights into the perception versus practice regarding summative assessment creation. This, however, represents an opportunity for future research, which will be explored shortly.

This study was restricted to early career junior secondary school teachers in Queensland. With any research, the applicability of outcomes to other contexts must be considered. While this study focused only on Queensland, it is useful for providing a basis for further research in other states and contexts where external examinations are used at the culmination of senior secondary schooling and prior years use teacher-created assessment for summative purposes. The conceptual framework was found to be accurate in providing a basis for the significant factors in improving the effectiveness of summative assessment and could be further tested with other early career teachers.

The data was collected from participants who volunteered to provide their opinions on assessment experiences; therefore, it is possible that the voices of those who are not interested in improving or have had negative experiences of creating assessment may not have been captured in this study. A study in which all (or a

random sample of) early career junior secondary teachers were required to complete the survey may have yielded different results.

The size of the sample is a limitation acknowledged for this study. A sample size of 116 is not ideal for generalisable quantitative data analysis, which caused some initial concerns from journals to which I had submitted Papers 3 and 4. I undertook extra reading on sample size in an attempt to strengthen my articles and concluded the following.

Methodological issues must be considered when carrying out an exploratory factor analysis (EFA). There are rules of thumb guiding sample size which are usually based on a ratio of participants to items (for example Gorsuch, 1983). However, more recent research has questioned the guidelines based on item / response ratios (O'Dwyer & Bernauer, 2013; Watkins, 2018). As such, more emphasis is now placed on other aspects such as high communalities of measured variables (0.8 or higher on average) and each factor being overdetermined (a minimum of 3 – 5 variables with significant loadings on each) as this can ensure the quality of data, even with a relatively small sample size (Fabrigar & Wegener, 2012). Although this study had 116 completed responses and could therefore be considered small in terms of response numbers with respect to the target population, the communalities of the measured variables were high, and each factor was overdetermined (see Paper 3). Therefore, according to Fabrigar and Wegener (2012), this data was appropriate for an EFA to be carried out and to expect reasonable results.

Finally, when considering the results in Paper 4, I began to wonder whether early career teachers were not just wanting more confidence. What if they actually need improvement in specific aspects of self-efficacy? As I had not used the



Generalised Self-Efficacy scale (Schwarzer & Jerusalem, 1995) in my survey, it was not possible to test for this. However, some of the results could be interpreted as trending toward a desire for particularly mastery experiences, vicarious experiences or verbal persuasion (Bandura, 1986), rather than generalised confidence. This aspect of confidence lends itself as a consideration for future research.

### **7.11 Recommendations for Future Research**

This research project provided the opportunity to study what supports exist within initial teacher education and in schools within the initial years of practice to assist early career teachers with the large responsibility of summative assessment creation. Several questions have been raised through this process that open up future possibilities for research. I am currently already facilitating professional development workshops with teachers (both early career and experienced) based on the *Quality Indicators*. I am collecting data from these workshops and look forward to analysing their pre and post assessment items as a result of these workshops. In addition to the initial professional development and associated data collection already beginning, there is certainly scope for longitudinal study in this area.

Primarily, research to evaluate the implementation and effectiveness of the *Practice Framework* is recommended. Follow-up research that assesses early career teachers' created summative assessment against the *Quality Indicators* prior to and following engagement with the *Practice Framework* is recommended. Such an investigation would determine whether the *Practice Framework* has the proposed effect of increasing the effectiveness of resultant summative assessment. Further, as identified in Paper 3, a confirmatory factor analysis is recommended to confirm the exploratory factor analysis undertaken to this point. Further specific results on

exactly *how* early career teachers wish to increase their confidence could come from testing for the different aspects of self-efficacy. To determine whether the results of this study are able to be generalised to a wider population, I recommend a repeated study of early career teachers, potentially as a truly random sample. This increased sample size would provide more data, which, if triangulated with the data gathered from the aforementioned longitudinal study could provide a well-rounded analysis of both the effectiveness of the *Quality Indicators* and practicability of the *Practice Framework*.

## **7.12 Conclusion**

A doctoral level study into understanding the Competence, Confidence and Opportunity of early career secondary teachers to create effective summative assessment has provided me with multiple opportunities. I have experienced the entirety of the research process, from conceptualisation to conclusion. I have been granted insight into the thoughts and experiences of early career teachers as I work to prepare my own students as best I can within the scope of initial teacher education. It has been a joy to speak in different settings with early career teachers, over the years of working on this study to hear their thoughts on what I have learnt and where my thinking was leading me. I am now being given opportunities to share this work, both within the university and in the broader school community in south-east Queensland and find it a joy an honour to be recognised for my growing expertise in the area of assessment creation. It excites me to think that, as a result of this research, teachers are being supported to create more valid, reliable, fair, authentic, and flexible assessment with confidence, which may ultimately result in students being given the opportunity to present their understanding of a topic in a

new way. Of course, I am pleased to see my first paper—*Quality Indicators of Effective Teacher-Created Summative Assessment* in print and being used by higher education students. I hope the other three papers currently in review will also be published and therefore useful to others interested in this topic.

However, I think the most important opportunity this study has afforded me has been to self-reflect. As with any substantial undertaking, there were emerging situations, interruptions and generally the peaks and valleys of life. Looking back on this journey, I realise I have become more determined, more resilient, and more flexible in my approach to tasks. I am proud of myself for following this journey through and for setting this example of determination and hard work for my children. This PhD journey has taught me about myself, not just about assessment. For that I am grateful.

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## APPENDIX A

### Australian Professional Standards and Focus Areas for Teachers from Graduate to Lead Career Stage

PROFESSIONAL KNOWLEDGE		PROFESSIONAL PRACTICE			PROFESSIONAL ENGAGEMENT	
1	2	3	4	5	6	7
<b>Know students and how they learn</b>	<b>Know the content and how to teach it</b>	<b>Plan for and implement effective teaching and learning</b>	<b>Create and maintain supportive and safe learning environments</b>	<b>Assess, provide feedback and report on student learning</b>	<b>Engage in professional learning</b>	<b>Engage professionally with colleagues, parents/carers, and the community</b>
<b>1.1</b> Physical, social, and intellectual development and characteristics of students	<b>2.1</b> Content and teaching strategies of the teaching area	<b>3.1</b> Establish challenging learning goals	<b>4.1</b> Support student participation	<b>5.1</b> Assess student learning	<b>6.1</b> Identify and plan professional learning needs	<b>7.1</b> Meet professional ethics and responsibilities
<b>1.2</b> Understand how students learn	<b>2.2</b> Content selection and organisation	<b>3.2</b> Plan, structure, and sequence learning programs	<b>4.2</b> Manage classroom activities	<b>5.2</b> Provide feedback to students on their learning	<b>6.2</b> Engage in professional learning and improve practice	<b>7.2</b> Comply with legislative, administrative, and organisational requirements
<b>1.3</b> Students with diverse linguistic, cultural, religious, and socioeconomic backgrounds	<b>2.3</b> Curriculum, assessment, and reporting	<b>3.3</b> Use teaching strategies	<b>4.3</b> Manage challenging behaviour	<b>5.3</b> Make consistent and comparable judgements	<b>6.3</b> Engage with colleagues and improve practice	<b>7.3</b> Engage with the parents/carers
<b>1.4</b> Strategies for teaching Aboriginal and Torres Strait Islander students	<b>2.4</b> Understand and respect Aboriginal and Torres Strait Islander people to promote reconciliation between Indigenous and non-Indigenous Australians	<b>3.4</b> Select and use resources	<b>4.4</b> Maintain student safety	<b>5.4</b> Interpret student data	<b>6.4</b> Apply professional learning and improve student learning	<b>7.4</b> Engage with professional teaching networks and broader communities

PROFESSIONAL KNOWLEDGE		PROFESSIONAL PRACTICE			PROFESSIONAL ENGAGEMENT	
1	2	3	4	5	6	7
Know students and how they learn	Know the content and how to teach it	Plan for and implement effective teaching and learning	Create and maintain supportive and safe learning environments	Assess, provide feedback and report on student learning	Engage in professional learning	Engage professionally with colleagues, parents/carers, and the community
1.5 Differentiate teaching to meet the specific learning needs of students across the full range of abilities	2.5 Literacy and numeracy strategies	3.5 Use effective classroom communication	4.5 Use ICT safely, responsibly, and ethically	5.5 Report on student achievement		
1.6 Strategies to support full participation of students with disability	2.6 Information and Communication Technology (ICT)	3.6 Evaluate and improve teaching programs				
		3.7 Engage parents/carers in the educative process				

Note: (AITSL, 2011)



## APPENDIX B

### Standard Five Focus Areas and Descriptors Across the Career Stages

Descriptor at career stage			
Graduate	Proficient	Highly Accomplished	Lead
<b>Focus area 5.1 Assess student learning</b>			
Demonstrate understanding of assessment strategies, including informal and formal, diagnostic, formative, and summative approaches to assess student learning.	Develop, select, and use informal and formal, diagnostic, formative, and summative assessment strategies to assess student learning.	Develop and apply a comprehensive range of assessment strategies to diagnose learning needs, comply with curriculum requirements and support colleagues to evaluate the effectiveness of their approaches to assessment.	Evaluate school assessment policies and strategies to support colleagues with: using assessment data to diagnose learning needs, complying with curriculum, system and/or school assessment requirements and using a range of assessment strategies.
<b>Focus area 5.1 Provide feedback to students on their learning</b>			
Demonstrate an understanding of the purpose of providing timely and appropriate feedback to students about their learning.	Provide timely, effective, and appropriate feedback to students about their achievement relative to their learning goals.	Select from an effective range of strategies to provide targeted feedback based on informed and timely judgements of each student's current needs in order to progress learning.	Model exemplary practice and initiate programs to support colleagues in applying a range of timely, effective, and appropriate feedback strategies.
<b>Focus area 5.3 Make consistent and comparable judgements</b>			
Demonstrate understanding of assessment moderation and its application to support consistent and comparable judgements of student learning.	Understand and participate in assessment moderation activities to support consistent and comparable judgements of student learning.	Organise assessment moderation activities that support consistent and comparable judgements of student learning.	Lead and evaluate moderation activities that ensure consistent and comparable judgements of student learning to meet curriculum and school or system requirements.

Descriptor at career stage			
Graduate	Proficient	Highly Accomplished	Lead
<b>Focus area 5.4 Interpret student data</b>			
Demonstrate the capacity to interpret student assessment data to evaluate student learning and modify teaching practice.	Use student assessment data to analyse and evaluate student understanding of subject/content, identifying interventions, and modifying teaching practice.	Work with colleagues to use data from internal and external student assessments for evaluating learning and teaching, identifying interventions, and modifying teaching practice.	Co-ordinate student performance and program evaluation using internal and external student assessment data to improve teaching practice.
<b>Focus area 5.5 Report on student achievement</b>			
Demonstrate understanding of a range of strategies for reporting to students and parents/carers and the purpose of keeping accurate and reliable records of student achievement.	Report clearly, accurately, and respectfully to students and parents/carers about student achievement, making use of accurate and reliable records.	Work with colleagues to construct accurate, informative, and timely reports to students and parents/carers about student learning and achievement.	Evaluate and revise reporting and accountability mechanisms in the school to meet the needs of students, parents/carers, and colleagues.

Note: (AITSL, 2011)

# APPENDIX C

## Systematic Literature Review Protocol

JBI Database of Systematic Reviews and Implementation Reports

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### Principles of effective summative assessment: A systematic literature review

#### Authors

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#### Review question(s)

The question of this review is: what are the overarching principles which define a piece of summative assessment as effective?

#### Introduction

Summative assessment is an issue of clear importance in education. It has been found to significantly affect how students learn, student motivation and student self-efficacy and wellbeing (Peterson & Irving, 2008). It is also now increasingly used as a form of quantitative data for external organisations to determine the effectiveness of teaching, courses and school performance (Department of Education and Training, 2018). Assessment of learning, or summative assessment, is defined as a formal piece of work conducted at the end of a unit or course to give a final indication of student progress. It is an evaluation of the extent to which the outcomes of a course have been achieved and counts toward the calculation of an overall achievement level (Butlin & Maden, 2018; Brady & Kennedy, 2012). Due to the increased value placed on the data able to be used from these summative assessment items by multiple key stakeholders, it is more important than ever that teachers are proficient and confident in their ability to create and implement summative assessment items. Not only this, with the changing senior secondary schooling landscape in Queensland (Queensland Curriculum and Assessment Authority, 2017), summative assessment items in the junior secondary years (Years 7-10) are becoming more significant to prepare students for the rigours of senior external assessment.

A theoretical knowledge of assessment, although vital, relies on the confidence of the teacher to create, implement and reflect on an assessment item for the piece to be a successful and effective measure of student understanding (Levy-Vered & Nassar-Abu Alhija, 2015; Woolfolk Hoy & Burke Spero, 2005). In literature reviewed to date, a universally agreed upon definition of what makes a piece of summative assessment "effective" has not been identified. It is therefore difficult for a teacher to reflect on and determine with any certainty whether their assessment is, in fact, successful.

A preliminary search of PROSPERO, the Cochrane Library, Campbell Collaboration, EPPI-Centre and the *JBI Database of Systematic Reviews and Implementation Reports* was conducted and no current or underway systematic reviews on the principles of effective summative assessment were

identified.

The objective of this review is to evaluate the overarching principles guiding effective summative assessment design. As a result of this review, a checklist of essential principles is anticipated to be created. This checklist may assist teachers in designing effective summative assessment for their students.

## Keywords

assessment design; assessment literacy; assessment of learning; summative assessment

## Inclusion Criteria

### Participants

The review will consider studies that include summative assessment. Assessment for learning and assessment as learning will be excluded as this study is looking at assessment of learning in particular.

### Phenomena of interest

This review will consider studies that explore the qualities, principles of characteristics determined as being essential to quality summative assessment.

### Context

This review will consider studies that look at teacher-created summative assessment. Externally set and designed summative assessment (such as standardised testing) will not be included. Western studies will be considered initially as these educational contexts are more homogenous.

### Types of studies

This review will consider studies that focus on qualitative data including, but not limited to, designs such as phenomenology, grounded theory, ethnography, action research and feminist research.

This review will consider interpretive studies that draw on the experiences of teachers or academics with the creation of summative assessment including, but not limited to, designs such as phenomenology, grounded theory, ethnography, action research and feminist research.

This review will consider critical studies that explore principles of effective summative assessment including, but not limited to, designs such as action research and feminist research.

This review will also consider textbooks and reference material on the topic of summative assessment.



Studies published in English will be included. Studies published from database inception to the present will be included.

## Methods

The proposed systematic literature review will be conducted in accordance with the Joanna Briggs Institute methodology for systematic literature reviews (Peters et.al, 2017.)

### Search strategy

The search strategy will aim to locate both published and unpublished studies. An initial limited search of Educational Research Complete database was undertaken to identify articles on the topic. The text words contained in the titles and abstracts of relevant articles, and the index terms used to describe the articles were used to develop a full search strategy for Educational Research Complete (see Appendix 1). The search strategy, including all identified keywords and index terms, will be adapted for each included information source. The reference list of all studies selected for critical appraisal will be screened for additional studies.

### Information sources

The databases to be searched include Academic Search Ultimate, ERIC, Education Research Complete and E-Journals through EBSCO Host; Australasian Education Directory, A+ Education, AUSTGUIDE and THESUS through Informat. Sources of unpublished studies and gray literature to be searched include education, initial teacher education and assessment textbooks; assessment design lectures in initial teacher education degrees; government documents and conference proceedings.

### Study selection

Following the search, all identified citations will be collated and uploaded into EndNote X9 and duplicates removed. Titles and abstracts will then be screened for assessment against the inclusion criteria for the review. Potentially relevant studies will be retrieved in full and their citation details imported into the Joanna Briggs Institute System for the Unified Management, Assessment and Review of Information (JBI SUMARI) (Joanna Briggs Institute, Adelaide, Australia). The full text of selected citations will be assessed in detail against the inclusion criteria. Reasons for exclusion of full text studies that do not meet the inclusion criteria will be recorded and reported in the systematic literature review. The results of the search will be reported in full in the final systematic literature review and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.

### Assessment of methodological quality

All studies and relevant texts, regardless of their methodological quality, will undergo data extraction and synthesis (where possible).

#### Data extraction

Data will be extracted from studies and texts included in the review using the standardized Joanna Briggs Institute data extraction tool for scoping reviews. The data extracted will include specific details about the populations, context, culture, geographical location, study methods and the phenomena of interest relevant to the review objective. Principles identified will be extracted. Authors of papers will be contacted to request missing or additional data, where required.

#### Data synthesis

Qualitative research findings will be thematically analysed using NVivo. This will involve the aggregation or synthesis of principles to categorise these principles on the basis of similarity in meaning. These categories will then be subjected to a synthesis in order to produce a single comprehensive set of synthesised principles that can be used as a basis for evidence-based practice.

#### Presentation of the results

The final findings will be presented as a single comprehensive list of principles and their definitions that are considered essential to the design of a piece of summative assessment. From this, a summative assessment document analysis checklist will be created for education practitioners' use.

#### Acknowledgements

This systematic literature review will contribute to the development of a document analysis tool used toward a PhD submission for N. Brownlie.

#### Funding

No external funding has been sourced or used in this systematic literature review.

#### Conflicts of interest

There is no conflict of interest in this project.

## References

- Brady, L., & Kennedy, K. (2012). *Assessment and reporting: Celebrating student achievement* (4th ed.). Melbourne, Australia: Pearson Australia.
- Butlin, M., & Maden, N. (2018). *Assessment and Reporting in Australian Schools*. Melbourne, Australia: Pearson Australia.
- Department of Education and Training (2018). *Through growth to achievement: Report of the review to achieve educational excellent in Australian Schools*. Canberra, Australia: Australian Government.
- Levy-Vered, A., & Nasser-Abu Alhija, F. (2015). Modelling beginning teachers' assessment literacy: The contribution of training, self-efficacy, and conceptions of assessment. *Educational Research and Evaluation, 21*(5-6), 378-406.  
<https://doi.org/10.1080/13803611.2015.1117980>
- Queensland Curriculum & Assessment Authority (2017). *Introducing Queensland's new senior assessment system: From syllabus to subject result*. Brisbane, Australia: Queensland Government.
- Peterson, E. R., & Irving, S. E. (2008). Secondary school students' conceptions of assessment and feedback. *Learning and Instruction, 18*, 238-250.  
<https://doi.org/10.1016/j.learninstruc.2007.05.001>
- Woolfolk Hoy, A., & Burke Spero, R. (2005). Changes in teacher efficacy during the early years of teaching: A comparison of four measures. *Teaching and Teacher Education, 21*, 343-356.  
<https://doi.org/10.1016/j.tate.2005.001.007>

## Appendices

### Appendix I: Search strategy

Initial Search strategy (this will be refined as the process for SLR is followed. This search strategy will be defined and justified in the final report):

Assess\* AND Summative AND (Principle? OR Characteristic? OR Quality OR Qualities).

Filter included: English language only

Search conducted on EBSCO Host (Academic Search Ultimate, ERIC, Education Research Complete, E-Journals)

#### Exclusion Criteria:

1. Articles in languages other than English
2. Formative or peer assessment (Assessment for learning or assessment as learning)
3. Opinion pieces
4. Reviews (book, journal, other media)



## APPENDIX D

### Systematic Literature Review Notes

Quality indicators of effective teacher-created summative assessment: Results of SLR

Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/ principles	Synonyms, other identified principles, and *Notes
Alkharusi, H., Aldhafri, S., Alnabhani, H., & Alkalbani, M. (2012). Educational assessment attitudes, competence, knowledge, and practices: An exploratory study of Muscat teachers in the Sultanate of Oman. <i>Journal of Education and Learning</i> , 1(2), 217-232. <a href="https://doi.org/10.5539/jel.v1n2n217">https://doi.org/10.5539/jel.v1n2n217</a>						✓	mentioned but not defined
Angelo, T. A. (1990). Classroom assessment: Improving learning quality where it matters most. <i>New Directions for Teaching and Learning</i> , 42, 71-82. <a href="https://doi.org/10.1002/tl.37219904208">https://doi.org/10.1002/tl.37219904208</a>						✓	classroom assessment looking only at AFL
Benade, L. (2017). Is the classroom obsolete in the twenty-first century? <i>Educational Philosophy and Theory</i> , 49(8), 796-801. <a href="https://doi.org/10.1080/00131857.2016.1269631">https://doi.org/10.1080/00131857.2016.1269631</a>						✓	assessment mentioned, but is an article on flexible learning spaces
Black, P. J. (1998). <i>Testing, friend or foe?: the theory and practice of assessment and testing</i> . Psychology Press.						✓	mentioned but not defined
Briggs, D. (2017). Learning theory and psychometrics: Room for growth. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(3), 351-358. <a href="https://doi.org/10.1080/0969594X.2017.1336987">https://doi.org/10.1080/0969594X.2017.1336987</a>						✓	mentioned but not defined
Broadfoot, P., & Black, P. (2004). Redefining assessment? The first ten years of assessment in education. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 11 (1), 7-26. <a href="https://doi.org/10.1080/0969594042000208976">https://doi.org/10.1080/0969594042000208976</a>						✓	"quality" assessment but no definition
Brown, G., & Michaelides, M. P. (2010). Ecological rationality in teachers' conceptions of assessment across samples from Cyprus and New Zealand. <i>European journal of psychology of education</i> , 26(3), 319-337. <a href="https://doi.org/10.1007/s10212-010-0052-3">https://doi.org/10.1007/s10212-010-0052-3</a>						✓	mentioned but not defined
Carliss, D. (2007). Learning-oriented assessment: Conceptual bases and practical implications. <i>Innovations in Education and Teaching International</i> , 44(1), 57-66. <a href="https://doi.org/10.1080/14703290601081332">https://doi.org/10.1080/14703290601081332</a>						✓	mentioned but not defined
Carr, M., McGee, C., Jones, A., McKinley, E., Bell, S., Barr, H. & Simpson, T. (2005). The effects of curricula and assessment on pedagogical approaches and on educational outcomes. Report to Ministry of Education. New Zealand: Ministry of Education. <a href="https://hdl.handle.net/10289/4336">https://hdl.handle.net/10289/4336</a>						✓	mentioned but not defined
Chappuis, J., & Stiggins, R. (2019). Classroom assessment for student learning: Doing it right - using it well (3rd ed.). Assessment Training Institute. <a href="https://www.amazon.com.au/Classroom-Assessment-Student-Learning-Divina/dn0135185577">https://www.amazon.com.au/Classroom-Assessment-Student-Learning-Divina/dn0135185577</a>						✓	classroom assessment defined only as AFL
Cookson, C. (2018). Assessment terms half a century in the making and unmaking: from conceptual ingenuity to definitional anarchy. <i>Assessment &amp; Evaluation in Higher Education</i> , 43 (6), 930-942. <a href="https://doi.org/10.1080/02602938.2017.1420138">https://doi.org/10.1080/02602938.2017.1420138</a>						✓	mentioned but not defined
Coombs, A., DeLuca, C., & MacGregor, S. (2020). A person-centered analysis of teacher candidates' approaches to assessment. <i>Teaching and Teacher Education</i> , 87, 102952. <a href="https://doi.org/10.1016/j.tate.2019.102952">https://doi.org/10.1016/j.tate.2019.102952</a>						✓	mentioned but not defined
Crooks, T. J. (2002). Educational assessment in New Zealand schools. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 9(2), 237-253. <a href="https://doi.org/10.1080/096959402200001959">https://doi.org/10.1080/096959402200001959</a>						✓	mentioned but not defined
Cumming, J. J., Van Der Kleij, F. M., & Adie, L. (2019). Contesting educational assessment policies in Australia. <i>Journal of Education Policy</i> , 34 (6), 836-857. <a href="https://doi.org/10.1080/02680939.2019.1608375">https://doi.org/10.1080/02680939.2019.1608375</a>						✓	Australian context, but does not define
Dannelly, K., & Wiltshire, K. (2014). Review of the Australian Curriculum, Final report. Australian Government. <a href="http://docs.education.gov.au/node/36269">http://docs.education.gov.au/node/36269</a>						✓	mentioned but not defined
Even, R. (2005). Using assessment to inform instructional decisions: How hard can it be? <i>Mathematics Education Research Journal</i> , 17(3), 45-61. <a href="https://doi.org/10.1007/BF03217421">https://doi.org/10.1007/BF03217421</a>						✓	mentioned but not defined
Harris, L. R., & Brown, G. T. L. (2009). The complexity of teachers' conceptions of assessment: Tensions between the needs of schools and students. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 16(3), 365-381. <a href="https://doi.org/10.1080/09695940903319745">https://doi.org/10.1080/09695940903319745</a>						✓	mentioned but not defined

Quality indicators of effective teacher-created summative assessment: Results of SLR

Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/ principles	Synonyms, other identified principles, and *Notes
Herppich, S., Praetorius, A.-K., Forster, N., Glogger-Frey, I., Karst, K., Leutner, D., Behrmann, L., Bohmer, M., Ufer, S., Klug, J., Hetmanek, A., Ohle, A., Bohmer, L., Karing, C., Kaiser, J., & Sudkamp, A. (2018). Teachers' assessment competence: Integrating knowledge-, process-, and product-oriented approaches into a competence-oriented conceptual model. <i>Teaching and Teacher Education</i> , 76, 181-193. <a href="https://doi.org/10.1016/j.tate.2017.12.001">https://doi.org/10.1016/j.tate.2017.12.001</a>						✓	not defined
Hickey, D. T., Zulkar, S. J., Taasooobshirazi, G., Schafer, N. J., & Michael, M. A. (2006). Balancing varied assessment functions to attain systemic validity: Three is the magic number. <i>Studies in Educational Evaluation</i> , 32(3), 180-201. <a href="https://doi.org/10.1016/j.stueduc.2006.08.006">https://doi.org/10.1016/j.stueduc.2006.08.006</a>						✓	no principles
Hill, M. (2006, 6-9 September). Comparing apples with pears. Teacher knowledge about assessment and its impact on their practices British Educational Research Association Annual Conference, University of Warwick. <a href="https://researchspace.auckland.ac.nz/bitst">https://researchspace.auckland.ac.nz/bitst</a>							not listed
Hill, M., Carie, B., Gilmore, A., & Smith, L.F. (2010). Preparing assessment-capable teachers: What should preservice teachers know and be able to do? <i>Assessment Matters</i> , 2, 43-64. <a href="https://doi.org/10.3316/informi.330451040688063">https://doi.org/10.3316/informi.330451040688063</a>						✓	assessment-capable teachers' but no clarification
Hopfenbeck, T. N. (2018). Assessment and learning in an uncertain world. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 25(4), 351-354. <a href="https://doi.org/10.1080/0969594x.2018.1507247">https://doi.org/10.1080/0969594x.2018.1507247</a>						✓	mentioned but not defined
Howley, M. D., Howley, A., Henning, J. E., Gilla, M. B., & Weade, G. (2013). Intersecting domains of assessment knowledge: Schools typologies based on interviews with secondary teachers. <i>Educational Assessment</i> , 18(1), 26-48. <a href="https://doi.org/10.1080/10627197.2013.761527">https://doi.org/10.1080/10627197.2013.761527</a>						✓	mentioned but not defined
Lalley, J., & Gentile, J. R. (2009). Classroom assessment and grading to assure mastery. <i>Theory Into Practice</i> , 48(1), 28-35. <a href="https://doi.org/10.1080/00405840802577577">https://doi.org/10.1080/00405840802577577</a>						✓	mentioned but not defined
Laveault, D. (2016). Building capacity: Professional development and collaborative learning about assessment. In D. Laveault & L. Allal (Eds.), <i>Assessment for Learning: Meeting the Challenge of Implementation. The Enabling Power of Assessment</i> (Vol. 4, pp. 131-143). Springer. <a href="https://doi.org/10.1007/978-3-319-39211-0_8">https://doi.org/10.1007/978-3-319-39211-0_8</a>						✓	quality assessment mentioned by not defined
Leung, C. (2007). Dynamic assessment: Assessment for and as teaching? <i>Language Assessment Quarterly</i> , 4(3), 257-278. <a href="https://doi.org/10.1080/15434300701481127">https://doi.org/10.1080/15434300701481127</a>						✓	not defined
Levy-Vered, A., & Nasser-Abu Alhija, F. (2015). Modelling beginning teachers' assessment literacy: The contribution of training, self-efficacy, and conceptions of assessment. <i>Educational Research and Evaluation</i> , 21(5-6), 378-406. <a href="https://doi.org/10.1080/1303611.2015.1117980">https://doi.org/10.1080/1303611.2015.1117980</a>						✓	mentioned but not defined
Livingston, K., & Hutchinson, C. (2017). Developing teachers' capacities in assessment through career-long professional learning. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(2), 290-307. <a href="https://doi.org/10.1080/0969594x.2016.1223016">https://doi.org/10.1080/0969594x.2016.1223016</a>						✓	high quality assessment but not clarified
Looney, A., Cumming, J., van Der Kleij, F., & Harris, K. (2018). Reconceptualising the role of teachers as assessors: Teacher assessment identity. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 25(5), 442-467. <a href="https://doi.org/10.1080/0969594x.2016.1268090">https://doi.org/10.1080/0969594x.2016.1268090</a>						✓	importance of teachers being confident in their ability to assess, but didn't define
Marcenaro-Gutierrez, O., & Vignoles, A. (2015). A comparison of teacher and test-based assessment for Spanish primary and secondary students. <i>Educational Research</i> , 57(1), 1-21. <a href="https://doi.org/10.1080/00131881.2014.983720">https://doi.org/10.1080/00131881.2014.983720</a>						✓	mentioned but not defined
Matre, S., & Solheim, R. (2016). Opening dialogic spaces: Teachers' metatalk on writing assessment. <i>International Journal of Educational Research</i> , 80, 188-203. <a href="https://doi.org/10.1016/j.ijer.2016.07.001">https://doi.org/10.1016/j.ijer.2016.07.001</a>						✓	writing (English) assessment, not creating assessment. No principles of good practice identified either

Quality indicators of effective teacher-created summative assessment: Results of SLR

Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/ principles	Synonyms, other identified principles, and *Notes
Mottier Lopez, L., & Pasquini, R. (2017). Professional controversies between teachers about their summative assessment practices: a tool for building assessment capacity. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24 (2), 228-249. <a href="https://doi.org/10.1080/0969594X.2017.1293001">https://doi.org/10.1080/0969594X.2017.1293001</a>						✓	mentioned but not defined
Murphy, V., Fox, J., Freeman, S. and Hughes, N. (2017). "Keeping it Real": a review of the benefits, challenges and steps towards implementing authentic assessment", <i>All Ireland Journal of Higher Education</i> , Vol. 9 No. 3, pp.3231-3243. <a href="https://sis.alph.edu/index.php/ajeh/article/view/780">https://sis.alph.edu/index.php/ajeh/article/view/780</a>						✓	higher education, so excluded from SLR, but explains the importance of authentic assessment for retention of knowledge
Newton, P. E. (2007). Clarifying the purposes of educational assessment. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 14(2), 149-170. <a href="https://doi.org/10.1080/09695940701478321">https://doi.org/10.1080/09695940701478321</a>						✓	mentioned but not defined
Ogan-Bekiroglu, F. (2009). Assessing assessment: Examination of pre-service physics teachers' attitudes towards assessment and factors affecting their attitudes. <i>International Journal of Science Education</i> , 31(1), 1-39. <a href="https://doi.org/10.1080/09500690701630448">https://doi.org/10.1080/09500690701630448</a>						✓	looked more at assessment literacy, rather than what the product should look like
Oosterhof, A. (2009). <i>Developing and using classroom assessments</i> (4th Ed.). Upper Saddle River, NJ: Pearson						✓	mentioned but not defined
Pellegrino, J. W., & Quellmaltz, E. S. (2010). Perspectives on the integration of technology and assessment. <i>Journal of Research on Technology in Education</i> , 43(2), 119-134. <a href="https://doi.org/10.1080/15391523.2010.10782565">https://doi.org/10.1080/15391523.2010.10782565</a>						✓	not defined
Prianto, A., Gomariyah, U. N. and Firman, F. (2022). "Does student involvement in practical learning strengthen deeper learning competencies?", <i>International Journal of Learning, Teaching and Educational Research</i> , Vol. 21 No 2. pp.211-231. <a href="https://doi.org/10.26803/ijlter.21.2.12">https://doi.org/10.26803/ijlter.21.2.12</a>						✓	mentioned but not defined
Queensland Studies Authority. (2009). <i>Student assessment regimes: Getting the balance right for Australia</i> . <a href="https://www.qcaa.qld.edu.au/downloads/publications/qa_paper_assess_balance_aust.pdf">https://www.qcaa.qld.edu.au/downloads/publications/qa_paper_assess_balance_aust.pdf</a>						✓	not defined
Rao, N. J., & Banerjee, S. (2023). Classroom Assessment in Higher Education. <i>Higher Education for the Future</i> , 10(1), 11–30. <a href="https://doi.org/10.1177/23476311221143231">https://doi.org/10.1177/23476311221143231</a>						✓	definition of summative assessment (no principles), but then looks at higher ed, therefore excluded.
Remesal, A. (2011). Primary and secondary teachers' conceptions of assessment: A qualitative study. <i>Teaching and Teacher Education</i> , 27 (2), 472-482. <a href="https://doi.org/10.1016/j.tate.2010.09.017">https://doi.org/10.1016/j.tate.2010.09.017</a>						✓	identifies 'effective' assessment but doesn't define
Schalfer, W. D. (1991). Essential assessment skills in professional education of teachers. <i>Educational Measurement: Issues and Practice</i> , 10(1), 3-6. <a href="https://doi.org/10.1111/j.1745-3992.1991.tb00170.x">https://doi.org/10.1111/j.1745-3992.1991.tb00170.x</a>						✓	
Simms, M., & George, B. (2013). Approaching assessment from a learning perspective: Elevating assessment beyond technique. <i>Educational assessment, evaluation and accountability</i> , 26(1), 95-104. <a href="https://doi.org/10.1007/s11092-013-9176-8">https://doi.org/10.1007/s11092-013-9176-8</a>						✓	mentioned but not defined
Simpson, G. (2004). "Assessing learning in a student-centred classroom environment" <i>Science Education Review</i> , Vol. 3 No. 3, pp.85-88. <a href="https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=E11058044">https://eric.ed.gov/contentdelivery/servlet/ERICServlet?accno=E11058044</a>						✓	successful' assessment but no definition
Song, Y., van Rijn, P., Deane, P., & Chao, S. (2023). Assessing argumentation skills of middle school students: A learning progression approach. <i>Reading and Writing</i> . <a href="https://doi.org/10.1007/s1145-022-10407-x">https://doi.org/10.1007/s1145-022-10407-x</a>						✓	not defined
Spinelli, C.G. (2011). <i>Linking assessment to instructional strategies: A guide for teachers</i> . Upper Saddle River, NJ: Pearson						✓	
Stiggins, R. (2004). New assessment beliefs for a new school mission. <i>Phi Delta Kappan</i> , 86(1), 22-27. <a href="https://doi.org/10.1177/003172170408600106">https://doi.org/10.1177/003172170408600106</a>						✓	
Stiggins, R. J., Arter, J. A., Chappuis, J., & Chappuis, S. (2007). Assessment for and of learning. <i>Classroom assessment for student learning: Doing it right-using it well</i> (pp. 29-46).						✓	mentioned but not defined
Tay, H. Y. (2018). <i>Designing quality authentic assessments: A look into Australian classrooms</i> (1st ed.). Routledge. <a href="https://doi.org/10.4324/9781315179131">https://doi.org/10.4324/9781315179131</a>						✓	for formative use not summative

Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/ principles	Synonyms, other identified principles, and *Notes
Teasdale, R., & Aird, H. (2023) Aligning multiple choice assessments with active learning instruction: More accurate and equitable ways to measure student learning. <i>Journal of Geoscience Education</i> , 71-1, 87-106, DOI: 10.1080/10899995.2022.2081462						✓	higher ed
Volante, L., & Fazio, X. (2007). Exploring teacher candidates' assessment literacy: Implications for teacher education reform and professional development. <i>Canadian Journal of Education</i> , 30(3), 749-770. <a href="http://csse.ca/CJE/Articles/CJE30-3.html">http://csse.ca/CJE/Articles/CJE30-3.html</a>						✓	Importance of assessment literacy but not what quality assessment looks like
Weatherby-Fell, N. (Ed.). (2015). <i>Learning to teach in the secondary school</i> . Melbourne, Australia: Cambridge University Press.						✓	mentioned but not defined
Westwood, P. S. (2008). <i>What teachers need to know about teaching methods</i> . Aust Council for Ed Research.						✓	mentioned but not defined
William, D. (2008). Quality in assessment. In <i>Unlocking assessment</i> (pp. 137-151). David Fulton Publishers.						✓	mentioned but not defined
Zhang, Z., & Burry-Stock, J. A. (2003). Classroom assessment practices and teachers' self-perceived assessment skills. <i>Applied Measurement in Education</i> , 16(4), 323-342. <a href="https://doi.org/10.1207/s15324818AME1604_4">https://doi.org/10.1207/s15324818AME1604_4</a>						✓	not defined
Zulker, S., & Whitaker, J. R. (2014). Refining Inquiry with multi-form Assessment: Formative and summative assessment functions for flexible Inquiry. <i>International Journal of Science Education</i> , 36(6), 1037-1059. <a href="https://doi.org/10.1080/09500693.2013.834489">https://doi.org/10.1080/09500693.2013.834489</a>						✓	not defined
Ornstein, A.C., & Hunkins, F.P. (2018). <i>Curriculum: Foundations, principles, and issues</i> (7th Ed.). Upper Saddle River, NJ: Pearson						✓	standardised testing only
Brookhart, S., Nitko, A. (2018). <i>Educational assessment of students</i> (6th ed.). Upper Saddle River, NJ: Pearson Education							
Assessment Reform Group (2004). <i>The role of teachers in the assessment of learning</i> . London: Newcastle Document Services	c.1	c.1					
Berry, R. (2008). <i>Assessment for learning</i> (Vol. 1). Hong Kong University Press.	p.1	p.1					Impact (p.6), practicality (p.6)
Bonner, S.M., & Chen, P.P. (2019). <i>Systematic classroom assessment: An approach for learning and self-regulation</i> . New York: Routledge	p.1	p.1	p.1				*goes on to focus on formative assessment, but begins with a definition of 'traditional or summative'
Brown, G. (2018). <i>Assessment of student achievement</i> . New York: Routledge	p.1	p.1		p.1			
Klenowski, V., & Wyatt-Smith, C. (2014). <i>Assessment for education: Standards, judgement and moderation</i> . Los Angeles: SAGE	p.1	p.3			p.4		
Sluijsmans, D. and Struyven, K. (2014). "Quality assurance in assessment: an introduction to this special issue", <i>Studies in Educational Evaluation</i> , Vol. 43, pp.1-4. <a href="https://doi.org/10.1016/j.stueduc.2014.08.003">https://doi.org/10.1016/j.stueduc.2014.08.003</a>	p.1	p.1	p.1	p.1	p.1		
Eastwell, P. (2006). Rethinking Unsupervised Summative Assessment. <i>The Science Education Review</i> , 5(1), 1-4. <a href="https://files.eric.ed.gov/fulltext/EJ1057142.pdf">https://files.eric.ed.gov/fulltext/EJ1057142.pdf</a>	p.1	p.1					*identifies that invalid, unfair and promotes cheating - essentially ineffective
Vogt, B. (2022). Supportive assessment strategies as curriculum events in a performance-oriented classroom context. <i>European Educational Research Journal</i> , 21(6), 1023-1040.	p.1024	p.124					
Rudner & Schafer 2002. What teachers need to know about assessment. US: National Education Association of the United States	p.12	p.16	p.65	p.87			"multiple methods", "efficient and feasible", "technology"
Tierney 2012. SAGE Handbook of research on classroom assessment Ch 8	p.126	p.126	p.126	p.125			
Tierney, R. D. (2012). Fairness in classroom assessment. In J. H. McMillan (Ed.), <i>SAGE Handbook of Research on Classroom Assessment</i> (pp. 125-144). SAGE Publications. <a href="https://ebookcentral-proquest-com.ezproxy.usq.edu.au/lib/usq/reader.action?docID=1207749&amp;pg=154">https://ebookcentral-proquest-com.ezproxy.usq.edu.au/lib/usq/reader.action?docID=1207749&amp;pg=154</a>	p.126	p.128	p.127	p.129			

Quality indicators of effective teacher-created summative assessment: Results of SLR

Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/principles	Synonyms, other identified principles, and *Notes
Darling-Hammond, L., Herman, J., Pellegrino, J., Abedi, J., Aber, J. L., Baker, E., Bennett, R., Gordon, E., Haertel, E., Hakuta, K., Ho, A., Linn, R. L., Pearson, P. D., Popham, J., Resnick, L., Schoenfeld, A. H., Shavelson, R., Shepard, L. A., Shulman, L., & Steele, C. M. (2013). <i>Criteria for high-quality assessment</i> . Stanford Centre for Opportunity Policy in Education, Stanford University; Centre for Research on Student Standards and Testing, University of California; & Learning Sciences Research, University. <a href="https://edpolicy.stanford.edu/sites/default/files/publications/criteria-higher-quality-assessment_0.pdf">https://edpolicy.stanford.edu/sites/default/files/publications/criteria-higher-quality-assessment_0.pdf</a>	p.13	p.13	p.13	p.13			assess higher-order cognitive skills, high fidelity assessment of critical abilities, standards are internationally benchmarked, use of items that are instructionally sensitive & educationally valuable (p.13)
DeLuca, C., Chavez, T., Bellara, A., & Cao, C. (2013). Pedagogies for preservice assessment education: Supporting teacher candidates' assessment literacy development. <i>The Teacher Educator</i> , 48 (2), 128-142. <a href="https://doi.org/10.1080/08878730.2012.760024">https://doi.org/10.1080/08878730.2012.760024</a>	p.130	p.130	p.130				
Chappuis, S., Chappuis, J., & Stiggins, R. (2009) The quest for quality. <i>Educational Leadership</i> , 67 (3), 14-19	p.14	p.15					*clear purpose/clear learning targets (V)(p.14) , effective communication of results, student involvement, clear and consistent results * (p.15)
Slater, 2013 Curriculum and assessment. Building high-performing and improving education systems	p.14	p.14			p.142		reliable standards, linked to curriculum (V), objectivity (R ), credibility of assessment
McMillan, J.H. (2014). <i>Classroom assessment: Principles and practice for effective standards-based instruction</i> (6th Ed.). Upper Saddle River, NJ: Pearson	p.15	p.15	p.15	p.15			
Murchan, D., & Shiel, G. (2017). <i>Understanding and applying assessment in education</i> . London: SAGE	p.15	p.15	p.15	p.15			
Randel, Clark, 2012. SAGE Handbook of research on classroom assessment Ch 9	p.150	p.150					
Leung, C., & Rea-Dickins, P. (2007). Teacher assessment as policy instrument: Contradictions and capacities. <i>Language Assessment Quarterly</i> , 4(1), 6-36. <a href="https://doi.org/10.1080/15434300701348318">https://doi.org/10.1080/15434300701348318</a>	p.16	p.16		p.16	p.16		*recognise what students can do*, *based on different kinds of evidence*, *manageable* (p.16)
Brookhart, S. (1997). "A theoretical framework for the role of classroom assessment in motivating student effort and achievement", <i>Applied Measurement in Education</i> , Vol. 10 No. 2, pp.161-180. <a href="https://doi.org/10.1207/s15324818ame1002_4">https://doi.org/10.1207/s15324818ame1002_4</a>	p.165	p.165	p.167	p.167	p.166		
Black, 2012. SAGE Handbook of research on classroom assessment. Ch 10	p.171	p.171					
Brady, L., & Kennedy, K. (2019). <i>Curriculum construction</i> (6th Ed.). Melbourne, Australia: Pearson	p.173		p.173	p.173	p.173		*facilitate learning, refer to criteria that are explicit, cover all aspects of the curricula, use a range of strategies, enable self-assessment, provide opportunities for students to negotiate required tasks, identify strengths and achievement, encourage a variety of intended learning outcomes, involve teacher judgment, provide opportunities for students to work together, provide more than one opportunity for students to meet requirements, be sensitive to gender, culture, linguistic and physical disability, socioeconomic status and geographical location (p.173)
Shepard, L. A. (2019). Classroom assessment to support teaching and learning. <i>The Annals of the American Academy of Political and Social Science</i> , 683(1), 183-200. <a href="https://doi.org/10.1177/002716219843818">https://doi.org/10.1177/002716219843818</a>	p.183		p.183	p.183	p.183		
Harlen, W. (2004). <i>The role of assessment by teachers in summative assessment systems: What is the evidence that teachers assessment can be used dependably for summative assessment?</i> Paper presented at the British Educational Research Association Annual Conference, University of Manchester, 16-18 September 2004).	p.2	p.2					
Edwards, F. C. E., & Edwards, R. J. (2017). A story of culture and teaching: the complexity of teacher identity formation. <i>The Curriculum Journal</i> , 28(2), 190-211. <a href="https://doi.org/10.1080/09585176.2016.1232200">https://doi.org/10.1080/09585176.2016.1232200</a>	p.205		p.205	p.199	p.202		*relevant* (A), *differentiation and equity* (FA), *student voice/choice* (FL)
Harlen, W. (2005). Teachers' summative practices and assessment for learning - tensions and synergies. <i>Curriculum Journal</i> , 16(2), 207-223. <a href="https://doi.org/10.1080/09585170500136093">https://doi.org/10.1080/09585170500136093</a>	p.207	p.207					dependability * (p.207)

Quality indicators of effective teacher-created summative assessment: Results of SLR

Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/ principles	Synonyms, other identified principles, and *Notes
Brown, G. T. L., Lake, R., & Matters, G. (2011). Queensland teachers' conceptions of assessment: The impact of policy priorities on teacher attitudes. <i>Teaching and Teacher Education</i> , 27(1), 210-220. <a href="https://doi.org/10.1016/j.tate.2010.08.003">https://doi.org/10.1016/j.tate.2010.08.003</a>	p.211	p.211					"aligned with curriculum, course planning and teaching" (p.211).
Edwards, F. (2013). Quality assessment by science teachers: Five focus areas. <i>Science Education International</i> , 24(2), 212-226. <a href="https://files.eric.ed.gov/fulltext/EJ1015826.pdf">https://files.eric.ed.gov/fulltext/EJ1015826.pdf</a>	p.212	p.212					manageability (p.213)
Black, P., Harrison, C., Hodgen, J., Marshall, B., & Serret, N. (2010). Validity in teachers' summative assessments. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 17(2), 215-232. <a href="https://doi.org/10.1080/09695941003696016">https://doi.org/10.1080/09695941003696016</a>	p.215	p.216					
Abell, S. K., & Siegel, M. A. (2011). Assessment Literacy: What Science Teachers Need to Know and Be Able to Do. In D. Corrigan, J. Dillon, & R. Gunstone (Eds.), <i>The Professional Knowledge Base of Science Teaching</i> (pp. 205-221). <i>Sorinam</i> .	p.220		p.220	p.209			use multiple types (p.220), supportive yet challenging (p.220), include scaffolding (p.220), allow students to be metacognitive (p.220), assess metacognition p.220
Lopes, L. M., & Pasquini, R. (2017). Professional controversies between teachers about their summative assessment practices: a tool for building assessment capacity. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(2), 228-249. <a href="https://doi.org/10.1080/0969594X.2017.1293001">https://doi.org/10.1080/0969594X.2017.1293001</a>	p.228	p.228					
Heubert, J. P., & Hauser, R. M. (1999). Committee on Appropriate Test Use, Board on Testing and Assessment, Commission on Behavioral and Social Sciences and Education, National Research Council. <i>High stakes: Testing for tracking, promotion, and graduation</i> .	p.23	p.66					
Mottier Lopez, L., & Pasquini, R. (2017). Professional controversies between teachers about their summative assessment practices: A tool for building assessment capacity. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(2), 228-249. <a href="https://doi.org/10.1080/0969594X.2017.1293001">https://doi.org/10.1080/0969594X.2017.1293001</a>	p.234						
Moss, C. M. (2013). Research on classroom summative assessment. In J. H. McMillan (Ed.), <i>SAGE Handbook of Research on Classroom Assessment</i> (pp. 235-255). SAGE Publications. <a href="https://ebookcentral-proquest-com.ernmc.usso.edu.au/ih/ucfn/detail.action?doi=10.1207749@erco.tnc">https://ebookcentral-proquest-com.ernmc.usso.edu.au/ih/ucfn/detail.action?doi=10.1207749@erco.tnc</a>	p.236	p.236					
Brady, L., & Kennedy, K. (2019). <i>Assessment and reporting: Celebrating student achievement</i> (5th Ed.). Melbourne, Australia: Pearson	p.25	p.25	p.25	p.25			aligned to curriculum'
Wood, R. (1993). <i>Assessment and testing: A survey of research</i> . Cambridge: Cambridge University Press.	p.26	p.26					
Pellegrino, J. W., & Wilson, M. (2015). Assessment of Complex Cognition: Commentary on the Design and Validation of Assessments. <i>Theory Into Practice</i> , 54(3), 263-273. <a href="https://doi.org/10.1080/00405841.2015.1044377">https://doi.org/10.1080/00405841.2015.1044377</a>	p.263						
Hume, A., & Coll, R. K. (2009). Assessment of learning, for learning, and as learning: New Zealand case studies. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 16(3), 269-290. <a href="https://doi.org/10.1080/09695940903319661">https://doi.org/10.1080/09695940903319661</a>	p.269	p.269		p.269			
Imlig, F., & Ender, S. (2018). Towards a national assessment policy in Switzerland: Areas of conflict in the use of assessment instruments. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 25 (3), 272-290. <a href="https://doi.org/10.1080/0969594X.2017.1390439">https://doi.org/10.1080/0969594X.2017.1390439</a>	p.272	p.272					unbiased, objective (p.272)
Bolden, B., & DeLuca, C. (2022). Nurturing student creativity through assessment for learning in music classrooms. <i>Research Studies in Music Education</i> , 44(1), 273-289. <a href="https://doi.org/10.1177/1321103x211054793">https://doi.org/10.1177/1321103x211054793</a>	p.286	p.277			p.277		alignment between assessment, curriculum and learning goals'
Koh, K., & Luke, A. (2009). Authentic and conventional assessment in Singapore schools: an empirical study of teacher assignments and student work. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 16(3), 291-318. <a href="https://doi.org/10.1080/09695940903319703">https://doi.org/10.1080/09695940903319703</a>	p.291	p.291	p.291		p.291		
Carjuzaa, J., & Kellough, R.D. (2014). <i>Teaching in the middle and secondary schools</i> (10th ed.). Upper Saddle River, NJ: Pearson	p.295	p.295					



Reference	Validity	Reliability	Authenticity	Fairness	Flexibility	No definition/principles	Synonyms, other identified principles, and *Notes
Brookhart, S. (2011). Educational assessment knowledge and skills for teachers. <i>Educational Measurement: Issues and Practice</i> , 30(1), 3-12. <a href="https://doi.org/10.1111/j.1745-3992.2010.00195.x">https://doi.org/10.1111/j.1745-3992.2010.00195.x</a>	p.3	p.5		p.5	p.5		"reflect clear and valued student learning targets" (p.5), "yield accurate results" (p. 5), "fair and ethical" (p.5)
Baird, J., Andrich, D., Hopfenbeck, T. N., & Stobart, G. (2017) Assessment and learning: fields apart?, <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24 (3), 317-350. <a href="https://doi.org/10.1080/0969594X.2017.1319337">https://doi.org/10.1080/0969594X.2017.1319337</a>	p.329	p.329	p.319	p.329			"designed to produce the best performances from individuals with clearly presented, relevant, concrete tasks that were not overly anxiety-provoking (p.329)"
DeLuca, C., & Bellara, A. (2013). The Current State of Assessment Education: Aligning Policy, Standards, and Teacher Education Curriculum. <i>Journal of Teacher Education</i> , 64(4), 356-372. <a href="https://doi.org/10.1177/0022487113488144">https://doi.org/10.1177/0022487113488144</a>	p.356	p.356		p.356			
Pellegrino, J. W. (2017). The two disciplines problem - 'it's like Déjà vu all over again?'. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(3), 359-368. <a href="https://doi.org/10.1080/0969594X.2017.1326876">https://doi.org/10.1080/0969594X.2017.1326876</a>	p.361						
Panadero, E., Fraile, J., Pinedo, L., Rodríguez-Hernández, C. and Díez, F. (2022), "Changes in classroom assessment practices during emergency remote teaching due to COVID-19", <i>Assessment in Education: Principles, Policy &amp; Practice</i> , Vol. 29 No. 3, pp. 361-382. <a href="https://doi.org/10.1080/0969594X.2022.2067123">https://doi.org/10.1080/0969594X.2022.2067123</a>	p.362	p.369		p.369	p.374		
McMahon, S., & Jones, I. (2015). A comparative judgement approach to teacher assessment. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 22(3), 368-389. <a href="https://doi.org/10.1080/0969594X.2014.978839">https://doi.org/10.1080/0969594X.2014.978839</a>	p.368	p.368					
Klenowski, V. (2013). Towards improving public understanding of judgement practice in standards-referenced assessment: An Australian perspective. <i>Oxford Review of Education</i> , 39(1), 36-51. <a href="https://doi.org/10.1080/03054985.2013.764759">https://doi.org/10.1080/03054985.2013.764759</a>	p.37	p.37					moderation & dependability (p.37)
Siegel, M. A., & Wissehr, C. (2011). Preparing for the plunge: Preservice teachers' assessment literacy. <i>Journal of Science Teacher Education</i> , 22 (4), 371-391. <a href="https://doi.org/10.1007/s10972-011-9231-6">https://doi.org/10.1007/s10972-011-9231-6</a>	p.373			p.373			
Daugherty, R. (2010). Summative assessment by teachers. <i>International Encyclopedia of Education</i> , 2009. Retrieved from <a href="http://ebookcentral.proquest.com">http://ebookcentral.proquest.com</a>	p.384	p.384					
Solomonidou, G., & Michaelides, M. P. (2017). Students' conceptions of assessment purposes in a low stakes secondary-school context: A mixed methodology approach. <i>Studies in Educational Evaluation</i> , 52, 35-41. <a href="https://doi.org/10.1016/j.stueduc.2016.12.001">https://doi.org/10.1016/j.stueduc.2016.12.001</a>	p.39	p.39		p.36			clear criteria, unbiased/objective
William, D. (2017). Assessment and learning: some reflections. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(3), 394-403. <a href="https://doi.org/10.1080/0969594X.2017.1318108">https://doi.org/10.1080/0969594X.2017.1318108</a>	p.397	p.397	p.397				
Stobart, G., & Gipps, C. (1990). <i>Assessment: A teacher's guide to the issues</i> (3rd Ed.). London: Hodder & Stoughton Educational	p.4	p.4		p.4			
Wiggins, G., & McTighe, J.(2005). <i>Understanding by design</i> (2nd Ed.). Upper Saddle River, NJ: Pearson	p.4	p.4	p.4				
James, M. (2017). (Re)viewing assessment: Changing lenses to refocus on learning. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(3), 404-414. <a href="https://doi.org/10.1080/0969594X.2017.1318823">https://doi.org/10.1080/0969594X.2017.1318823</a>	p.406	p.406	p.409				"dependability" (R ) (p.408)
Black, P. (2000). Research and the development of educational assessment. <i>Oxford Review of Education</i> , 26(3-4), 407-419. <a href="https://doi.org/10.1080/713688540">https://doi.org/10.1080/713688540</a>	p.410	p.410	p.411	p.411			
DeLuca, C., & Klinger, D. A. (2010). Assessment literacy development: identifying gaps in teacher candidates' learning. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 17(4), 419-438. <a href="https://doi.org/10.1080/0969594X.2010.516643">https://doi.org/10.1080/0969594X.2010.516643</a>	p.419	p.419					
Gioka, O. (2008). Teacher or Examiner? The Tensions between Formative and Summative Assessment in the Case of Science Coursework. <i>Research in science education</i> (Australasian Science Education Research Association), 39(4), 411-428. <a href="https://doi.org/10.1007/s11165-008-9086-9">https://doi.org/10.1007/s11165-008-9086-9</a>	p.426			p.426			

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So, W. M. M., & Lee, T. T. H. (2011). Influence of teachers' perceptions of teaching and learning on the implementation of Assessment for Learning in inquiry study. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 18(4), 417-432. <a href="https://doi.org/10.1080/0969594X.2011.577409">https://doi.org/10.1080/0969594X.2011.577409</a>	p.427	p.427		p.428			
Mui So, M. M. and Hoi Lee, T. T. (2011). "Influence of teachers' perceptions of teaching and learning on the implementation of assessment for learning in inquiry study", <i>Assessment in Education: Principles, Policy &amp; Practice</i> , Vol. 18 No. 4, pp.417-432. <a href="https://doi.org/10.1080/0969594X.2011.577409">https://doi.org/10.1080/0969594X.2011.577409</a>	p.428	p.427		p.427			
Fórez Petour, M. T. (2017). "Power, ideology, politics: 'The elephant in the room' in the relationship between assessment and learning", <i>Assessment in Education: Principles, Policy &amp; Practice</i> , Vol. 24 No. 3, pp.433-439. <a href="https://doi.org/10.1080/0969594X.2017.1333083">https://doi.org/10.1080/0969594X.2017.1333083</a>	p.434						alignment between assessment and curriculum
Petour, M. T. F. (2017). Power, ideology, politics: 'the elephant in the room' in the relationship between assessment and learning. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(3), 433-439. <a href="https://doi.org/10.1080/0969594X.2017.1333083">https://doi.org/10.1080/0969594X.2017.1333083</a>	p.434						
Klenowski, V. (2013). Towards fairer assessment. <i>Australian Educational Researcher</i> , 41(4), 445-470. <a href="https://doi.org/10.1007/s13384-013-0132-x">https://doi.org/10.1007/s13384-013-0132-x</a>	p.446		p.450	p.450	p.450		"negotiated" (p. 450)
Black, P., Harrison, C., Hodgen, J., Marshall, B., & Serret, N. (2011). Can teachers' summative assessments produce dependable results and also enhance classroom learning? <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 18(4), 451-469. <a href="https://doi.org/10.1080/0969594X.2011.557020">https://doi.org/10.1080/0969594X.2011.557020</a>	p.451	p.451					"quality" (p.451), "dependability" (p.451)
Lau, A. M. S. (2016). 'Formative good, summative bad?' - A review of the dichotomy in assessment literature. <i>Journal of Further and Higher Education</i> , 40(4), 509-525. <a href="https://doi.org/10.1080/0308877x.2014.984600">https://doi.org/10.1080/0308877x.2014.984600</a>	p.514	p.514	p.515		p.515		
Maclellan, E. (2004). Initial knowledge states about assessment: novice teachers' conceptualisations. <i>Teaching and Teacher Education</i> , 20(5), 523-535. <a href="https://doi.org/10.1016/j.tate.2004.04.008">https://doi.org/10.1016/j.tate.2004.04.008</a>	p.524	p.524		p.524			
Ewing, R. (2013). <i>Curriculum and assessment: storylines</i> (2nd ed.). Sydney, Australia: Oxford University Press	p.54		p.60	p.60	p.61		"involve complex thinking and problem solving" - A?
Steinberg & Waspe, 2016. <i>The struggle for academic rigour in assessment education</i>	p.55	p.55		p.55			
Black, P., & William, D. (2018). Classroom assessment and pedagogy. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 25 (6), 551-575. <a href="https://doi.org/10.1080/0969594X.2018.1441807">https://doi.org/10.1080/0969594X.2018.1441807</a>	p.551	p.566					
Miller, M. D., Linn, R.L., & Gronlund, N. (2013). <i>Measurement and assessment in teaching</i> . (11th ed.). Boston, MA: Pearson Education	p.57	p.57					
McMillan. 2012. <i>SAGE Handbook of research on classroom assessment</i> Ch 1	p.6			p.6			
Popham, W.J. (2014). <i>Classroom assessment: What teachers need to know</i> (7th ed.). Boston, MA: Pearson Education.	p.6	p.6		p.6			
Russell, M.K., & Airasian, P.W. (2008). <i>Classroom assessment</i> (7th ed.). New York: McGraw Hill	p.7	p.7		p.7			
Waugh, C.K., & Gronlund, N.E. (2013). <i>Assessment of student achievement</i> (10th ed.). Upper Saddle River, NJ: Pearson	p.7	p.7	p.7				
Gipps, C. (1994). Quality in teacher assessment. In W. Harlen (Ed.), <i>Enhancing quality in assessment</i> (pp. 71-85). London: British Educational Research Association.	p.71	p.71		p.71			
Webster, S., & Ryan, A. (2014). <i>Understanding curriculum: The Australian context</i> . Melbourne, Australia: Cambridge University Press	p.71	p.72		p.72			
Camobell. 2012. <i>SAGE Handbook of research on classroom assessment</i> . Ch 5.	p.73	p.73					feedback (p.73)
Gulikers, J. T. M., Bastiaens, T. J., & Kirschner, P. A. (2007). Defining authentic assessment: five dimensions of authenticity. In A. Havnes & L. McDowell (Eds.), <i>Balancing dilemmas in assessment and learning in contemporary education</i> (pp. 75-88). Routledge.	p.76	p.77	p.76		p.79		construct validity (p.76), consequential validity (p.76)
Christoforidou, M., Kyriakides, L., Antoniou, P., & Creemers, B. P. M. (2014). Searching for stages of teacher's skills in assessment. <i>Studies in Educational Evaluation</i> , 40, 1-11. <a href="https://doi.org/10.1016/j.stueduc.2013.11.006">https://doi.org/10.1016/j.stueduc.2013.11.006</a>	p.8				p.8		"different formats" (FL), alignment to curriculum (V) (p.8)



Quality indicators of effective teacher-created summative assessment: Results of SLR

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Bennett, R., Deane, P., & van Rijn, P. W. (2016). From cognitive-domain theory to assessment practice. <i>Educational Psychologist</i> , 51(1), 82-107. <a href="https://doi.org/10.1080/00461520.2016.1141683">https://doi.org/10.1080/00461520.2016.1141683</a>	p.82						"provide valid information (p.92)" "facilitate learning and teaching (p.92)"
Lam, R. (2019). Teacher assessment literacy: Surveying knowledge, conceptions and practices of classroom-based writing assessment in Hong Kong. <i>System</i> , 81, 78-89. <a href="https://doi.org/10.1016/j.system.2019.01.006">https://doi.org/10.1016/j.system.2019.01.006</a>	p.83	p.83					
Gebri, A. (2017). Language teachers' conceptions of assessment: An Egyptian perspective. <i>Teacher Development</i> , 21(1), 81-100. <a href="https://doi.org/10.1080/13664530.2016.1218364">https://doi.org/10.1080/13664530.2016.1218364</a>	p.84	p.84			p.85		accountability (R) (p.84)
Bonner 2012. SAGE Handbook of research on classroom assessment Ch 6	p.87						
Lingham, G. I., & Lingham, N. (2016). Developing school heads as instructional leaders in school-based assessment: Challenges and next steps. <i>Australian Journal of Teacher Education</i> , 41(2), 91-105. <a href="https://doi.org/10.14221/ajte.2016v41n2.6">https://doi.org/10.14221/ajte.2016v41n2.6</a>	p.93	p.93					
Stokking, K., van der Schaaf, M., Jaspers, J., & Erkens, G. (2004). Teachers' assessment of students' research skills. <i>British Educational Research Journal</i> , 30(1). <a href="https://doi.org/10.1080/01411920310001629883">https://doi.org/10.1080/01411920310001629883</a>	p.93	p.93		p.93			utility
Deluca, C., LaPointe-McEwan, D., & Luhanga, U. (2016). Teacher assessment literacy: a review of international standards and measures. <i>Educational assessment, evaluation and accountability</i> , 28(3), 251-272. <a href="https://doi.org/10.1007/s11092-015-9233-6">https://doi.org/10.1007/s11092-015-9233-6</a>				p.251			equitable (p.251)
Isaacs, T., Zara, C., Herbert, G., Coombs, S. and Smith, C. (2013). "Key concepts in educational assessment". <a href="https://doi.org/10.4135/9781473915077">https://doi.org/10.4135/9781473915077</a>		p.123					
Looney, A., Cumming, J., van Der Kleij, F., & Harris, K. (2018). Reconceptualising the role of teachers as assessors: Teacher assessment identity. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 25(5), 442-467. <a href="https://doi.org/10.1080/0968542x.2016.1268898">https://doi.org/10.1080/0968542x.2016.1268898</a>				p.452			
Masters, G., & Forster, M. (2000). The assessments we need. Australian Council for Educational Research.			p.3				
Parkes 2012. SAGE Handbook of research on classroom assessment Ch 7	c.1						
Tveit, S. (2014). Educational assessment in Norway. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 21(2), 221-237. <a href="https://doi.org/10.1080/0969594x.2013.830079">https://doi.org/10.1080/0969594x.2013.830079</a>		p.228					consistency and comparability of teacher judgement
Woolfolk, A. and Margetts, K. (2007). "Educational psychology", Pearson Australia, French Forest.		p.476					ensure consistency of marking, dependable judgement
Wyatt-Smith, C., Alexander, C., Fishburn, D., & McMahon, P. (2017). Standards of practice to standards of evidence: Developing assessment capable teachers. <i>Assessment in Education: Principles, Policy &amp; Practice</i> , 24(2), 250-270. <a href="https://doi.org/10.1080/0969594x.2016.1228603">https://doi.org/10.1080/0969594x.2016.1228603</a>			p.259	p.259			multiple forms for multiple purposes, underpinned by a theoretical framework, inclusive of the core underpinning skills of data use, ethical principles, regard for diversity and inclusion (p.259)

# APPENDIX E

## Acceptance Email For Paper 1

**From:** [adminTrackit@emeraldpublishing.com](mailto:adminTrackit@emeraldpublishing.com)  
**To:** [Nicole Brownlie](#)  
**Subject:** QAE - Quality indicators of effective teacher-created summative assessment, is now published online.  
**Date:** Monday, 21 August 2023 6:17:41 PM

---

21-Aug-2023

QAE - Quality Assurance in Education

Emerald Insight Date: 21-Aug-2023

I am pleased to inform you that Quality indicators of effective teacher-created summative assessment of *Quality Assurance in Education* has been published on Emerald Insight.

Should you have any queries please do not hesitate to contact the Production Department.

Best Wishes,

R. Verma

Emerald Production Department

Emerald Group Limited, Registered Office: Howard House, Wagon Lane, Bingley, BD16 1WA United Kingdom. Registered in England No. 3080506, VAT No. GB 665 3593 06

# APPENDIX F

## Task Sheet Template (QCAA, 2023)

ACiQ | v9.0

### [School name]

Use this template to construct an assessment task. Fill in the fields, select options from the dropdown menus, or add your own information. Delete:

- any boxes that are not required
- or add rows as required
- the QCAA logo in the footer and replace with the school logo.

### Year [#] [Learning area/Subject]: [Task]

Student	[Enter student name.]	Student no. (optional)	[Enter student no.]
Teacher	[Enter teacher name.]		
<b>What is my task?</b> Provide a context statement to set the scene or focus for the assessment task (if needed). Clearly state the text response type students will complete. [Enter the task description.]			
<b>What do I need to do to complete the task?</b> Clearly explain the steps required to complete the task. Use numbers to identify each step in the sequence. Instructions should use language that is clear, direct and accessible to students. They should include the cognitive verbs or command verbs. Use 1.5 spacing. 1. [List the assessment task instructions.]			
<b>Conditions</b> Identify conditions under which the assessment will be implemented. Conditions could include: <ul style="list-style-type: none"><li>• word length</li><li>• time</li><li>• number of slides</li><li>• resources, e.g. calculator, dictionary.</li></ul> [Enter the conditions.]			
Date issued	[Enter a date from the dropdown calendar.]		
Due date	[Enter a date from the dropdown calendar.]		
<b>Checkpoints</b> <input type="checkbox"/> [Date]: [Identify checkpoint action.]			
<b>Glossary</b> [Enter term.] [Enter definition.]			



**QCAA**  
Queensland Curriculum  
& Assessment Authority



230057-01

For all Queensland schools

Authentication strategies
Add, edit or delete authentication strategies as appropriate.
<ul style="list-style-type: none"> <li>• Complete in class under supervised conditions.</li> </ul>
<ul style="list-style-type: none"> <li>• Submit a plan for the development of your response to your teacher.</li> </ul>
<ul style="list-style-type: none"> <li>• Complete work in class — your teacher will observe you and may use annotations or notes to record the development of your response.</li> </ul>
<ul style="list-style-type: none"> <li>• Participate in an interview or conference with your teacher who will ask you questions about your response.</li> </ul>
<ul style="list-style-type: none"> <li>• Submit a draft to your teacher.</li> </ul>
<ul style="list-style-type: none"> <li>• Acknowledge all sources used.</li> </ul>
<ul style="list-style-type: none"> <li>• Include a declaration of authenticity.</li> </ul>
<ul style="list-style-type: none"> <li>• Submit your work through the academic integrity software program.</li> </ul>

 This template is © State of Queensland (QCAA) 2023

Licence: <https://creativecommons.org/licenses/by/4.0> | Copyright notice: [www.qcaa.qld.edu.au/copyright](http://www.qcaa.qld.edu.au/copyright) — lists the full terms and conditions, which specify certain exceptions to the licence. |

Attribution (include the link): © State of Queensland (QCAA) 2023 [www.qcaa.qld.edu.au/copyright](http://www.qcaa.qld.edu.au/copyright).

# APPENDIX G

## Example Standard Elaborations for Use in Year 9 English Assessment Tasks

### Year 9 English standard elaborations

		A	B	C	D	E
The folio of a student's work has the following characteristics:						
Receptive mode	Understanding	<u>discerning</u> analysis of the ways text structures can be manipulated for effect	<u>effective</u> analysis of the ways text structures can be manipulated for effect	analysis of the ways text structures can be manipulated for effect	<u>partial</u> analysis of the ways text structures can be manipulated for effect	<u>fragmented</u> analysis of the ways text structures can be manipulated for effect
		<u>discerning</u> analysis and explanation of how images, vocabulary choices and language features distinguish the work of individual authors	<u>effective</u> analysis and explanation of how images, vocabulary choices and language features distinguish the work of individual authors	analysis and explanation of how images, vocabulary choices and language features distinguish the work of individual authors	<u>partial</u> analysis and explanation of how images, vocabulary choices and language features distinguish the work of individual authors	<u>fragmented</u> analysis and explanation of how images, vocabulary choices and language features distinguish the work of individual authors
	Skills	<u>discerning</u> evaluation and integration of ideas and information from texts to form interpretations	<u>effective</u> evaluation and integration of ideas and information from texts to form interpretations	evaluation and integration of ideas and information from texts to form interpretations	<u>partial</u> evaluation and integration of ideas and information from texts to form interpretations	<u>fragmented</u> evaluation and integration of ideas and information from texts to form interpretations
		<u>discerning</u> analysis and explanation of how language choices and conventions are used to influence audiences by selecting evidence from the text	<u>effective</u> analysis and explanation of how language choices and conventions are used to influence audiences by selecting evidence from the text	analysis and explanation of how language choices and conventions are used to influence audiences by selecting evidence from the text	<u>partial</u> analysis and explanation of how language choices and conventions are used to influence audiences by selecting evidence from the text	<u>fragmented</u> analysis and explanation of how language choices and conventions are used to influence audiences by selecting evidence from the text
		listening for <u>and detailed description of</u> ways texts position an audience	listening for <u>and description of</u> ways texts position an audience	listening for ways texts position an audience	listening for <u>and partial description of</u> ways texts position an audience	listening for <u>and fragmented description of</u> ways texts position an audience

		A	B	C	D	E
The folio of a student's work has the following characteristics:						
Understanding		<b>discerning</b> use of a variety of language features to create different levels of meaning	<b>effective</b> use of a variety of language features to create different levels of meaning	use of a variety of language features to create different levels of meaning	<b>partial</b> use of a variety of language features to create different levels of meaning	<b>fragmented</b> use of a variety of language features to create different levels of meaning
		<b>discerning</b> comparison of own responses to texts to responses of others to show how interpretations can vary	<b>effective</b> comparison of own responses to texts to responses of others to show how interpretations can vary	comparison of own responses to texts to responses of others to show how interpretations can vary	<b>partial</b> comparison of own responses to texts to responses of others to show how interpretations can vary	<b>fragmented</b> comparison of own responses to texts to responses of others to show how interpretations can vary
		<b>discerning</b> manipulation of language features and images to create innovative texts	<b>effective</b> manipulation of language features and images to create innovative texts	manipulation of language features and images to create innovative texts	<b>partial</b> manipulation of language features and images to create innovative texts	<b>fragmented</b> manipulation of language features and images to create innovative texts
Productive mode		<b>discerning</b> interpretation and integration of ideas from other texts to create texts that respond to issues	<b>effective</b> interpretation and integration of ideas from other texts to create texts that respond to issues	interpretation and integration of ideas from other texts to create texts that respond to issues	<b>partial</b> interpretation and integration of ideas from other texts to create texts that respond to issues	<b>fragmented</b> interpretation and integration of ideas from other texts to create texts that respond to issues
		making of <b>purposeful</b> presentations	making of <b>effective</b> presentations	making of presentations	making of <b>partial</b> presentations	making of <b>fragmented</b> presentations
Skills		active contributions to class and group discussions that <b>purposefully</b> compare and evaluate responses to ideas and issues	active contributions to class and group discussions that <b>effectively</b> compare and evaluate responses to ideas and issues	active contributions to class and group discussions that compare and evaluate responses to ideas and issues	active contributions to <b>aspects of</b> class and group discussions that compare and evaluate responses to ideas and issues	active contributions to <b>elements of</b> class and group discussions that compare and evaluate responses to ideas and issues
		<b>discerning</b> selection of vocabulary and grammar that contributes to the precision and persuasiveness of texts when editing for effect	<b>effective</b> selection of vocabulary and grammar that contributes to the precision and persuasiveness of texts when editing for effect	selection of vocabulary and grammar that contributes to the precision and persuasiveness of texts when editing for effect	<b>partial</b> selection of vocabulary and grammar that contributes to the precision and persuasiveness of texts when editing for effect	<b>fragmented</b> selection of vocabulary and grammar that contributes to the precision and persuasiveness of texts when editing for effect
		<b>purposeful</b> use of accurate spelling and <b>purposeful use of</b> punctuation	<b>effective</b> use of accurate spelling and <b>effective use of</b> punctuation	use of accurate spelling and punctuation	<b>partial</b> use of accurate spelling and punctuation	<b>fragmented</b> use of accurate spelling and punctuation
Key		<b>shading</b> emphasises the <b>qualities that discriminate between A–E descriptors</b>				




# APPENDIX H


## Submission Email from Teachers and Teaching

The screenshot shows an email client window titled "Submission received for Teachers and Teaching (Submission ID: 224948923) - Message (HTML)". The interface includes a ribbon with various actions like Ignore, Delete, Archive, Reply, Reply All, Forward, Meeting, Move, Send to OneNote, Mark Unread, Categorise, Follow Up, Read Aloud, Immersive Reader, Translate, and Zoom. The email content is as follows:

Submission received for Teachers and Teaching (Submission ID: 224948923)

 journalshelpdesk@taylorandfrancis.com  
To Nicole Brownlie

Mon 28/11/2022 10:01 AM



---

Dear Nicole Brownlie,

Thank you for your submission.

Submission ID           **224948923**  
Manuscript Title       **Improving the effectiveness of teacher-created summative assessment:  
Conceptualising the link between capacity and opportunity**  
Journal                   **Teachers and Teaching**

You can check the progress of your submission, and make any requested revisions, on the [Author Portal](#).

Thank you for submitting your work to our journal.  
If you have any queries, please get in touch with [journalshelpdesk@taylorandfrancis.com](mailto:journalshelpdesk@taylorandfrancis.com).

Kind Regards,  
*Teachers and Teaching* Editorial Office

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Registered office: 5 Howick Place, London, SW1P 1W.

# APPENDIX I

## Survey Items with Response Options

Item Number	Item	Options
1	Age (choose one)	20-25 26-30 31-35 36-40 41+
2	Gender (choose one)	Male Female Prefer not to say
3	Teacher registration status (choose one)	Not yet registered Provisionally registered Fully registered
4	How many years have you been teaching? (choose one)	0-1 2-3 3-4 4-5 6+
5	The location of the school would best be described as (choose one)	Metropolitan Regional Rural/Remote
6	Type of school (choose one)	Public/State Catholic Independent
7	Number of students enrolled (choose one)	<100 101-200 201-300 301-500 501-800 801-1000 1001+
8	Teaching Area 1 (choose one)	English Maths Science Humanities and Social Sciences Technologies Health and Physical Education The Arts Languages Work Studies
9	Have you taught in this teaching area? (choose one)	Yes No
10	Number of staff who teach into this teaching area (choose one)	Just me 2 3-4 5-9 10 or more The school does not offer my first teaching area
11	Teaching Area 2 (choose one)	English Maths Science Humanities and Social Sciences Technologies Health and Physical Education The Arts Languages Work Studies



Item Number	Item	Options
12	Have you taught in this teaching area? (choose one)	Yes No
13	Number of staff who teach into this teaching area (choose one)	Just me 2 3-4 5-9 10 or more The school does not offer my first teaching area
14	Have you taught outside your teaching areas? (choose one)	Yes No
15	Please identify the statement(s) that apply to your experiences in your initial teacher education (ITE) degree: (choose as many as apply)	I had multiple courses devoted entirely to summative assessment in my ITE degree, I had multiple courses devoted to assessment in my ITE degree, I had one course devoted to summative assessment in my ITE degree, I had one course devoted to assessment in my ITE degree, I had some explicit teaching of summative assessment within multiple courses across my ITE degree, I had some explicit teaching of summative assessment within one other course in my ITE degree, I had no explicit teaching of summative assessment throughout my ITE degree
	In terms of your knowledge and skills regarding summative assessment during your ITE degree, please rate the extent to which you agree with the following statements: (choose one)	
16	I was taught how to interpret existing summative assessment items	
17	I was taught how to mark according to an existing summative assessment rubric	Strongly disagree Disagree Neither agree nor disagree
18	I was taught how to modify existing task sheets to suit my context or students	Agree Strongly agree
19	I was taught how to modify existing rubrics to suit my context or students	
20	I was taught how to create new summative assessment task sheets	
21	I was taught how to create new summative assessment rubrics	
	Thinking about your knowledge and skills in creating summative assessment <b>task sheets</b> at graduation: (choose one)	
22	I knew what was necessary to include in a task sheet	
23	I could identify a well-constructed task sheet	Strongly disagree Disagree Neither agree nor disagree
24	I could explain why a task sheet was well- or poorly constructed	Agree Strongly agree
25	I could identify how to improve a poorly constructed task sheet	
26	I could make improvements to a poorly constructed task sheet	

Item Number	Item	Options
	Thinking about your knowledge and skills in creating summative assessment <i>rubrics</i> at graduation: (choose one)	
27	I knew what was necessary to include in a rubric	Strongly disagree
28	I could identify a well-constructed rubric	Disagree
29	I could explain why a rubric was well- or poorly constructed	Neither agree nor disagree
30	I could identify how to improve a poorly constructed rubric	Agree
31	I could make improvements to a poorly constructed rubric	Strongly agree
	Thinking about your knowledge and skills in creating summative assessment <i>task sheets now</i> , please indicate the extent to which you agree with the following statements: (choose one)	
32	I know what is necessary to include in a task sheet	Strongly disagree
33	I can identify a well-constructed task sheet	Disagree
34	I can explain why a task sheet is well- or poorly constructed	Neither agree nor disagree
35	I can identify how to improve a poorly constructed task sheet	Agree
36	I can make improvements to a poorly constructed task sheet	Strongly agree
	Thinking about your knowledge and skills in creating summative assessment <i>rubrics now</i> , (choose one)	
37	I know what is necessary to include in a rubric	Strongly disagree
38	I can identify a well-constructed rubric	Disagree
39	I can explain why a rubric is well- or poorly constructed	Neither agree nor disagree
40	I can identify how to improve a poorly constructed rubric	Agree
41	I can make improvements to a poorly constructed rubric	Strongly agree
	Please match each description to the most applicable principle of summative assessment (choose one)	
42	The assessment item is strongly aligned to the curriculum requirements as well as what has been taught (validity)	
43	The task and rubric have been written in such a way that objective and defensible marking of the task can take place, no matter who marks it or when it is marked (reliability)	Reliability
44	The assessment item has real-life meaning to the student (authenticity)	Flexibility
45	The student has some choice in either topic or presentation mode (flexibility)	Validity
46	There is freedom from bias and each student has an equitable chance to succeed in the assessment item (fairness)	Fairness

Item Number	Item	Options
47	How many opportunities have you had to create a summative assessment <b>task sheet</b> since graduating? (choose one)	0 1 2-3 4-5 6 or more
	Thinking now about your teaching career up to this point regarding summative assessment <b>task sheets</b> in your classes, (choose one)	
48	I have had the opportunity to teach the unit/s leading up to the SA	Never
49	Before I gave the task sheet/s to my class, someone looked over it and provided me with feedback or suggested improvements	Rarely Sometimes Mostly Always
50	My task sheet/s improved as a result of the feedback	N/A
51	The position/s of the person/people who looked over my task sheet/s were (choose all that apply)	No one Head of department Head of curriculum Deputy principal Senior colleague Another beginning teacher Teacher aide Friend or family member N/A
52	If you have not had the opportunity to create a summative assessment task sheet, please indicate why (choose as many as applicable)	I have not been asked We have used existing task sheets and therefore no new task sheets have been written in my teaching areas I offered to create a task sheet, but was declined I have been asked, but turned down an offer due to time I have been asked, but turned down an offer due to low self-confidence Other N/A – I <i>have</i> created summative assessment task sheets
53	I would have liked the opportunity to create a summative assessment task sheet since becoming a teacher (choose one)	Strongly disagree Disagree I'm not sure Agree Strongly agree N/A
54	How many opportunities have you had to create a summative assessment <b>rubric</b> ? (choose one)	0 1 2-3 4-5 6 or more
	Thinking now about your teaching career up to this point regarding summative assessment <b>rubrics</b> in your classes, (choose one)	
55	I have had the opportunity to teach the unit/s leading up to the SA	Never
56	Before I gave the rubric/s to my class, someone looked over it and provided me with feedback or suggested improvements	Rarely Sometimes Mostly Always
57	My rubric/s improved as a result of the feedback	N/A

Item Number	Item	Options
58	The position/s of the person/people who looked over my rubric/s were (choose all that apply)	No one Head of department Head of curriculum Deputy principal Senior colleague Another beginning teacher Teacher aide Friend or family member N/A
59	Can you briefly identify why you have not had the opportunity to create a summative assessment rubric? (choose as many as applicable)	I have not been asked We have used existing rubrics and therefore no new rubrics have been written in my teaching areas I offered to create a rubric, but was declined I have been asked, but turned down an offer due to time I have been asked, but turned down an offer due to low self-confidence Other N/A – I <i>have</i> created summative assessment rubrics
60	I would have liked the opportunity to create a summative assessment rubric since becoming a teacher (choose one)	Strongly disagree Disagree I'm not sure Agree Strongly agree N/A
Please identify your thoughts on the following statements at this point in your career; (choose one)		
61	I would like more opportunities to create a summative assessment task sheet	
62	I would like more opportunities to create a summative assessment rubric	
63	I would like more opportunities to receive feedback on my task sheet	
64	I would like more opportunities to receive feedback on my rubric	Strongly disagree Disagree
65	I feel as though my theoretical knowledge in how to create summative assessment has increased since graduation	I'm not sure Agree Strongly agree
66	I feel as though my skills in creating summative assessment have increased since graduation	
67	I feel as though my confidence to create summative assessment has increased since graduation	
Please identify your thoughts on the following statements at this point in your career;		
68	In order to improve my summative assessment, I need more knowledge and skills	Strongly disagree Disagree I'm not sure
69	In order to improve my summative assessment items, I need more confidence	Agree Strongly agree

Item Number	Item	Options
70	In order to improve my summative assessment items, I need more practice	
71	In order to improve my summative assessment items, I need more feedback	
72	In order to improve my summative assessment items, I need a combination of all of these (knowledge, skills, confidence, practice and feedback) Have you undertaken any professional development on summative assessment creation since graduation? (choose one)	
73	One-off professional development up to one day in duration	
74	Multiple discrete professional development sessions up to one day in duration	
75	An internal short course delivered in person	No
76	An external short course delivered in person	No but I'd like to I'd like to but have not been able or approved to do it
77	A self-paced online course	Yes, it was self-directed Yes, it was directed by the school
78	Ongoing external training on a regular basis	
79	Ongoing training from an internal staff member on a regular basis	
80	An ongoing mentoring relationship with a more experienced colleague	
81	Informal conversations with a more experienced colleague when needed	
82	Would you like to tell us anything else about your summative assessment experiences either during your initial teacher education degree or since becoming a practicing teacher? For example, your opportunities may have changed with changing school, or as you take on a role with more responsibility, etc. (free response)	

## APPENDIX J

### Correlation Table of 'Total' Column to Determine Concurrent Validity of Survey

Now, I can identify how to improve a poorly constructed rubric	Pearson Correlation	.580**
	Sig. (2-tailed)	0.000
Now, I can make improvements to a poorly constructed rubric	Pearson Correlation	.586**
	Sig. (2-tailed)	0.000
(TS) I have had the opportunity to teach the unit leading up to the SA	Pearson Correlation	.382**
	Sig. (2-tailed)	0.000
Before I gave the TS to class, someone looked over it and provided me with feedback or suggested improvements	Pearson Correlation	.309**
	Sig. (2-tailed)	0.002
My TS improved as a result of feedback	Pearson Correlation	0.172
	Sig. (2-tailed)	0.085
Not created TS: I would have liked to	Pearson Correlation	.230*
	Sig. (2-tailed)	0.021
(R) I have had the opportunity to teach the unit leading up to the SA	Pearson Correlation	.345**
	Sig. (2-tailed)	0.000
Before I gave the R to class, someone looked over it and provided me with feedback or suggested improvements	Pearson Correlation	.371**
	Sig. (2-tailed)	0.000
My R improved as a result of feedback	Pearson Correlation	0.150
	Sig. (2-tailed)	0.136
Not created R: I would have liked to	Pearson Correlation	.335**
	Sig. (2-tailed)	0.001
I am confident in my knowledge of SA	Pearson Correlation	.456**
	Sig. (2-tailed)	0.000
I am confident in my ability to create an effective TS	Pearson Correlation	.610**
	Sig. (2-tailed)	0.000
I am confident in my ability to create an effective R	Pearson Correlation	.621**
	Sig. (2-tailed)	0.000
I would like more opportunities to create TA	Pearson Correlation	0.047
	Sig. (2-tailed)	0.640
I would like more opportunities to create R	Pearson Correlation	0.061
	Sig. (2-tailed)	0.546
I would like more opportunities to receive feedback on TS	Pearson Correlation	0.183
	Sig. (2-tailed)	0.067
I would like more opportunities to receive feedback on R	Pearson Correlation	.196*
	Sig. (2-tailed)	0.049
Theoretical knowledge in creating SA has increased since graduation	Pearson Correlation	.395**
	Sig. (2-tailed)	0.000
Skills in creating SA R has increased since graduation	Pearson Correlation	.432**
	Sig. (2-tailed)	0.000
My confidence to create SA has increased since graduation	Pearson Correlation	.455**
	Sig. (2-tailed)	0.000
In order to increase I need more knowledge and skills	Pearson Correlation	-0.017
	Sig. (2-tailed)	0.866
In order to increase I need more confidence	Pearson Correlation	0.153
	Sig. (2-tailed)	0.128
In order to increase I need more practice	Pearson Correlation	0.050
	Sig. (2-tailed)	0.617
In order to increase I need more feedback	Pearson Correlation	-0.025
	Sig. (2-tailed)	0.803
practice and feedback	Sig. (2-tailed)	0.452
	Pearson Correlation	1
Total	Pearson Correlation	1
	Sig. (2-tailed)	

*Note:* Correlations coefficients which meet or exceed the critical value for Pearson's  $r$  have been highlighted. The  $df$  = number of pairs of scores – 2. The  $df$  of this survey is 48, therefore the critical value 2-tailed to 0.05 for  $df$  = 50 was 0.273 (Statistics Solutions, 2023).

## APPENDIX K

### Ethics Approval Notice

From: [human.ethics@usq.edu.au](mailto:human.ethics@usq.edu.au) [<mailto:human.ethics@usq.edu.au>]  
Sent: Friday, 29 March 2019 11:35 AM  
To: Nicole Brownlie <[Nicole.Brownlie@usq.edu.au](mailto:Nicole.Brownlie@usq.edu.au)>; Luke Van Der Laan <[Luke.VanDerLaan@usq.edu.au](mailto:Luke.VanDerLaan@usq.edu.au)>  
Subject: [RIMS] USQ HRE - H19REA020 - Ethics Application Approval Notice (Expedited Review)

Dear Nicole

I am pleased to confirm your Human Research Ethics (HRE) application has now been reviewed by the University's Expedited Review process. As your research proposal has been deemed to meet the requirements of the National Statement on Ethical Conduct in Human Research (2007), ethical approval is granted as follows.

Project Title: H19REA020 - Opportunity and capacity of early career teachers to create effective assessment: Implications for junior secondary teachers in regional Queensland.  
Approval date: 29/03/2019  
Expiry date: 29/03/2022  
USQ HREC status: Approved with conditions

- (a) responsibly conduct the project strictly in accordance with the proposal submitted and granted ethics approval, including any amendments made to the proposal;
- (b) advise the University (email: [ResearchIntegrity@usq.edu.au](mailto:ResearchIntegrity@usq.edu.au)) immediately of any complaint pertaining to the conduct of the research or any other issues in relation to this project which may warrant review of the ethical approval of this project;
- (c) promptly report any adverse events or unexpected outcomes to the University (email: [ResearchIntegrity@usq.edu.au](mailto:ResearchIntegrity@usq.edu.au)) and take prompt action to deal with any unexpected risks;
- (d) make submission for any amendments to the project and obtain approval prior to implementing such changes;
- (e) provide a progress 'milestone report' when requested and at least for every year of approval;
- (f) provide a final 'milestone report' when the project is complete.
- (g) promptly advise the University if the project has been discontinued, using a final 'milestone report'.

Additional conditionals of approval for this project are:

- (a) Nil.

Please note that failure to comply with the conditions of this approval or requirements of the Australian Code for the Responsible Conduct of Research, 2018, and the National Statement on Ethical Conduct in Human Research, 2007 may result in withdrawal of approval for the project.

If you have any questions or concerns, please don't hesitate to make contact with an Ethics Officer.

Congratulations on your ethical approval! Wishing you all the best for success!

Kind regards,

Human Research Ethics

University of Southern Queensland  
Toowoomba – Queensland – 4350 – Australia  
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## APPENDIX L

**Table of Frequency Distribution for Demographic Information**

	Demographic	Frequency (%)
Gender	Male	24.8
	Female	73.3
	Non-binary	2.0
Age	20-25	37.6
	26-30	20.8
	31-35	9.9
	36-40	12.9
	41+	18.8
Teacher registration status	Not yet registered	3.0
	Provisionally registered	53.5
	Fully registered	43.6
Years of experience	0-1	50.5
	2-3	22.8
	3-4	10.9
	4-5	5.0
	6+	10.9
Location of school	Metropolitan	43.6
	Regional	40.6
	Rural/remote	15.8
Number of students attending the secondary school	<100	2.0
	101-200	5.9
	201-300	4.0
	301-500	6.9
	501-800	21.8
	801-1000	14.9
Type of school	>1001	44.6
	State/Government	76.2
	Catholic	6.9
	Independent	16.8



# APPENDIX M

## Participant Information Sheet



University of Southern Queensland

### Participant Information for USQ Research Project Questionnaire

#### Project Details

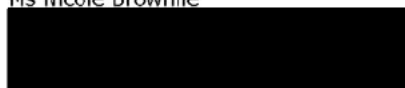
Title of Project: **Opportunity and capacity of beginning teachers to create effective assessment: Implications for junior secondary teachers in Queensland.**

Human Research Ethics Approval Number: H19REA020

#### Research Team Contact Details

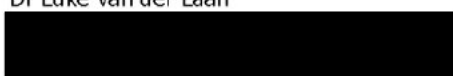
##### Principal Investigator Details

Ms Nicole Brownlie



##### Supervisor Details

Dr Luke van der Laan



#### Description

This research is being undertaken as part of a PhD Project. The purpose of this project is to explore the experiences of early career junior secondary school teachers in regional Queensland regarding the creation and implementation of summative assessment items. It also intends to consider potential links between a teacher's ability to create assessment items, their self-efficacy regarding their abilities as well as the opportunities they have to create and implement these assessment items in their years as a graduate teacher.

The researcher requests your assistance because of your career stage, which may provide pertinent insights into this issue. Your opinions are being sort in a research study undertaken for the completion of a PhD study.

By participating in this project, you will be providing the researcher with valuable information to help the understand the opportunities and challenges faced by graduate teachers regarding the creation and implementation of summative assessment items within the junior years of secondary schools. Potential benefits of the study include being part of a study relevant to your professional practice. As such you will have an insight into a relevant and important study in the discourse of educational assessment which may further potentially inform future improvements to practice.

#### Participation

Your participation will involve completion of an online questionnaire that will take approximately 15 minutes of your time. This is an anonymous online questionnaire and it therefore will not be possible to withdraw your data after participating in this research.

Questions will include asking your opinion on themes such as:

- Your knowledge and skills in creating summative assessment
- Your self-efficacy regarding the creation and implementation of summative assessment; and
- Your opportunities to create and implement summative assessment in junior secondary classes since graduating

Your participation in this project is entirely voluntary. If you do not wish to take part, you are not obliged to do so. You will be unable to withdraw data collected about yourself after you have participated in this questionnaire. If you do wish to withdraw from this project, please feel free to not complete the questionnaire.

Your decision whether you take part or do not take part will in no way impact your current or future relationship with the University of Southern Queensland.

#### **Expected Benefits**

It is expected that this project will not directly benefit you, except for the fact that you know that you have personally contributed to the generation of new knowledge and a greater understanding in this area.

#### **Risks**

In participating in the questionnaire, there are no anticipated risks, other than a small time impact.

#### **Privacy and Confidentiality**

All comments and responses will be treated confidentially unless required by law.

The names of individual persons are not required in any of the responses.

All data will be non-identifiable and will be securely stored in accordance with University of Southern Queensland's Research Data Management policy and the Australian Code for the Responsible Conduct of Research. The data may be used in the future by the principal researcher for prospective research purposes.

You will, upon request, be able to access a summary of the research results or a copy of the completed dissertation.

#### **Consent to Participate**

Clicking on the 'Submit' button at the conclusion of the questionnaire is accepted as an indication of your consent to participate in this project.

#### **Questions or Further Information about the Project**

Please refer to the Research Team Contact Details at the top of the form to have any questions answered or to request further information about this project.

#### **Concerns or Complaints Regarding the Conduct of the Project**

If you have any concerns or complaints about the ethical conduct of the project you may contact the University of Southern Queensland Manager of Research Integrity and Ethics on +61 7 4631 2214 or email [researchintegrity@usq.edu.au](mailto:researchintegrity@usq.edu.au). The Manager of Research Integrity and Ethics is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

# APPENDIX N

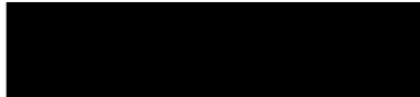
## Landing Page of Survey with Consent

### **Opportunity and capacity of beginning teachers to create effective assessment: Implications for junior secondary teachers in Queensland.**

Human Research Ethics Approval Number: H19REA020

#### **Principal Investigator Details**

Ms Nicole Brownlie



This research is being undertaken as part of a PhD Project. The purpose of this project is to explore the experiences of beginning junior secondary school teachers in Queensland regarding the creation and implementation of summative assessment items. It also intends to consider potential links between a teacher's ability to create assessment items, their self-efficacy (self-confidence) regarding their abilities as well as the opportunities they have to create and implement these assessment items in their years as a graduate teacher.

By participating in this project, you will be providing me with valuable information to help me understand the opportunities and challenges faced by graduate teachers regarding the creation and implementation of summative assessment items within the junior years of secondary schools. Potential benefits of the study include being part of a study relevant to your professional practice. As such you will have an insight into a relevant and important study in the discourse of educational assessment which may further potentially inform future improvements to practice.

Your participation will involve completion of an anonymous online questionnaire that will take approximately 20 minutes of your time.

Questions will include asking your opinion on themes such as:


- Your knowledge and skills in creating summative assessment
- Your self-efficacy regarding the creation and implementation of summative assessment; and
- Your opportunities to create and implement summative assessment in junior secondary classes since graduating

Your participation in this project is entirely voluntary. If you do not wish to take part, you are not obliged to do so. Clicking on the 'Submit' button at the conclusion of the questionnaire is accepted as an indication of your consent to participate in this project. You will be unable to withdraw data collected about yourself after you have participated in this questionnaire, due to us not being able to identify your response. If you do wish to withdraw from this project, please feel free to not complete the questionnaire.

Your decision whether you take part or do not take part will in no way impact your current or future relationship with the University of Southern Queensland. Your name nor personally identifiable details are not required in any of the responses.

All data will be non-identifiable and will be securely stored in accordance with University of Southern Queensland's Research Data Management policy and the Australian Code for the Responsible Conduct of Research. The data may be used in the future by the principal researcher for prospective research purposes.

You will, upon request, be able to access a summary of the research results or a copy of the completed dissertation. If you have any concerns or complaints about the ethical conduct of the project you may contact the University of Southern Queensland Manager of Research Integrity and Ethics on +61 7 4631 2214 or email [researchintegrity@usq.edu.au](mailto:researchintegrity@usq.edu.au). The Manager of Research Integrity and Ethics is not connected with the research project and can facilitate a resolution to your concern in an unbiased manner.

Thank you so much for assisting me in my research. I hope to gain a fuller understanding of your experiences as a beginning teacher in order to further support others, either during their training or during their initial years as a practicing teacher. If you would like to view the results of this research or have any questions, please feel free to contact me via 

## APPENDIX O

### Email of Submission from Australian Educational Researcher

**From:** [em.aere.0.85fb00.5cdecba7@editorialmanager.com](mailto:em.aere.0.85fb00.5cdecba7@editorialmanager.com) on behalf of [The Australian Educational Researcher \(AERE\)](#)  
**To:** [Nicole Brownlie](#)  
**Subject:** AERE-D-23-00386 - Submission Confirmation  
**Date:** Tuesday, 12 September 2023 1:53:58 PM

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Dear Ms Brownlie,

Thank you for submitting your manuscript, Dilemma of expectations? Identifying the factors underpinning early career teacher professional development in summative assessment creation, to The Australian Educational Researcher.

The submission id is: AERE-D-23-00386  
Please refer to this number in any future correspondence.

During the review process, you can keep track of the status of your manuscript by accessing the following website:

Your username is: NicoleBrownlie  
If you forgot your password, you can click the 'Send Login Details' link on the EM Login page at <https://www.editorialmanager.com/aere/>

Should you require any further assistance please feel free to e-mail the Editorial Office by clicking on "Contact Us" in the menu bar at the top of the screen.

Thank you very much.

With kind regards,  
Springer Journals Editorial Office  
The Australian Educational Researcher

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## APPENDIX P

### Email of Submission from Educational Assessment, Evaluation and Accountability

**From:** [em.eaea.0.85fab1.14765925@editorialmanager.com](mailto:em.eaea.0.85fab1.14765925@editorialmanager.com) on behalf of [Educational Assessment, Evaluation and Accountability](#)  
**To:** [Nicole Brownlie](#)  
**Subject:** Acknowledgement of Receipt  
**Date:** Tuesday, 12 September 2023 12:34:47 PM

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Dear Ms Brownlie:

Thank you for submitting your manuscript, "Demystifying the creation of effective summative assessment by early career teachers: What do they really think?", to Educational Assessment, Evaluation and Accountability.

During the review process, you can keep track of the status of your manuscript by accessing the following web site:

Your username is: NBrownlie-249

If you forgot your password, you can click the 'Send Login Details' link on the EM Login page at <https://www.editorialmanager.com/eaea/>.

With kind regards, The

Editorial Office  
Educational Assessment, Evaluation and Accountability

Note: Should you require any further assistance please feel free to contact the Editorial Office by clicking on the "contact us" in the menu bar to send an email to us.

Alternatively, please call us at 001-630-468-7784 (outside the US)/(630)-468-7784 (within the US) anytime from Monday to Friday.

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## **APPENDIX Q**

### **Output Related To This Research**

**Brownlie, N.** (2018, November 21). *Designing effective assessment* [professional development presentation]. Staff Ed, University of Southern Queensland, Toowoomba, QLD.

**Brownlie, N.,** Burke, K., & van der Laan, L. (2021, July 8-10). *Capacity and opportunity in creating effective summative assessment: The practice-based perceptions of early career teachers in Queensland* [Poster]. HERDSA Conference 2021, Brisbane, Australia.

**Brownlie, N.** (2023, September 1). *Focusing on Assessment* [professional development presentation]. Staff Moderation Day, St Ursula's College, Toowoomba, QLD.