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Sharing the construction of assessment rubrics with students: A Model for collaborative rubric construction

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Abstract

Traditionally, rubrics were used simply as grading tools to provide marking frameworks that were transparent to students. More recently, rubrics have been promoted as educational tools to inform students of good practice with the assumption that they engage with these rubrics to guide their learning. However, some tensions arise from this approach, including the assumption that students actually engage with assessment rubrics and, most notably, whether students understand the purpose of rubrics and the language used within. In response, this paper promotes the practice of teachers involving their students in the co-construction of rubrics by presenting a *Model of Collaborative Rubric Construction*. This Model was informed by an extensive literature review, advice from international assessment experts, and both qualitative and quantitative data from students and teachers who worked in partnership to co-construct and use assessment rubrics across three higher education institutions. The Model, structured as three-tiers, offers background information about rubrics and their co-construction, strategies to guide collaboration in the rubric co-construction process, and shared scholarship associated with the project (i.e., research methods, recommendations for practice, and relevant references and publications) in which the Model was developed.

Practitioner Notes

1.Teachers in higher education often use rubrics as tools for assessment with an underlying assumption that students understand their purpose and how these will be used by their teacher. 2. There is often a disjunct between the assumptions of teachers and actual student understanding of rubrics. 3. When teachers and students work together in the co-construction of rubrics, opportunities are provided to dialogue and develop shared understanding of their purpose and use. 4. The presented Model of Collaborative Rubric Construction outlines a complete process for co-construction of rubrics which teachers may adopt fully, or in part, to improve shared understanding of rubrics with their students.

Keywords

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Introduction

The design of assessment tasks in higher education has traditionally been the domain and responsibility of the teacher or the course designer as a subject expert. They usually make decisions about which assessment tasks will be used to evaluate students' learning and, subsequently, design assessment tools that are used to guide the process of marking assessment tasks. In more recent years, rubrics have become increasingly prevalent in higher education university courses as assessment tools for recording, collating and distributing assessment feedback from teachers to students. Most rubrics take the form of a marking grid, or matrix, in which marking criteria are listed in the first column and corresponding performance levels are described across the top (Figure 1). Performance descriptors may also populate the grid, corresponding to the intersecting coordinates of the marking criteria and each performance level (**Figure 1**). For overviews of rubric design and use in higher education see Dawson (2017), Ragupathi and Lee (2020), and Reddy and Andrade (2010).

Figure 1

	Highest performance level	High-mid performance level	Mid-low performance level	Lowest performance level	**Grade**
Marking criteria 1					
Marking criteria 2					
Marking criteria 3					
Comments:	FEEDBACK NARRATIVE				OVERALL GRADE

PERFORMANCE DESCRIPTORS

Common components of an assessment rubric

In higher education, assessment rubrics tend to be created by academic teaching staff, hereafter 'teachers', and then shared with their students to communicate learning expectations either before or after the assessment task is marked. In some cases, students have been invited to be involved in the marking process (Hafner & Hafner, 2003; Jackson & Larkin, 2002). However, in more recent times, teachers have explored the potential of working in partnership with their students *before* the rubric is shared with students (i.e. during the assessment design process), with some inviting students to participate in the co-construction of assessment rubrics (Kilgour et al., 2020).

This paper reports on the final phase of a mixed methods, multi-site case study project in which six cohorts of higher education students worked with their teachers to co-construct assessment rubrics *before* the submission of their assessment tasks. In the first phase of the project, a number of effective rubric characteristics were identified through consultation with recent literature and higher education assessment experts. In the second phase, six student groups across five disciplines in three higher education institutions then worked with their teachers to collaboratively create and use assessment rubrics. The third phase of the project tracked the perceptions of students and teachers in the process of constructing and using the co-constructed rubrics. In this final phase, the project's researchers used the data gathered and analysed in the first three phases of the project to develop a *Model of Collaborative Rubric Construction*, which promotes the practice of teachers involving

their students in the co-construction of rubrics. The Model shares with other academic teaching staff in higher education institutions the background information related to the project, as well as the project's processes, resources and deliverables.

Literature review

Assessment rubrics are one form of evaluation tool, usually in the form of a matrix, that are used to assist teachers in the grading process but also have the potential to be useful instructional tools for improving student performance (Francis, 2018), especially if students engage in rubric analysis processes before they use the rubrics (Eshun & Osei-Poku, 2013). Traditionally, rubrics have been used by teachers to document expectations and provide quantifiable outcomes to inform the grading process. However, assessment rubrics are also useful as instructional tools and, when used in formative assessment, can have positive effects on student learning and their ability to self-regulate the education process (Bell et al., 2013; Jones et al., 2017). While the value of formative evaluation and feedback as part of the learning process has been established in varied educational contexts (Cizek, 2010; Nicol & Macfarlane-Dick, 2006), rubrics have traditionally been used only for summative assessment purposes (Panadero & Jonsson, 2013).

Formative assessment or *'assessment for learning'* is considered to be an important tool in the way people learn (Bennett, 2011; Dudek et al., 2019; Nicol & Macfarlane-Dick, 2006; Shepard, 2005). Assessment for learning experiences are enhanced when students participate in forms of assessment at specified intervals during the learning and teaching process. Bennett (2011) believes that "Formative assessment then might be best conceived as neither a test nor a process, but some thoughtful integration of process and purposefully designed methodology or instrumentation" (p. 6). When considered alongside the use of assessment, Bennett's advice may be applied to engage students in the co-construction of rubrics *prior* to the completion of assessment tasks, a new level of awareness and learning will be adopted as a result of integration of process and methodology. A review conducted by Panadero and Jonsson (2013) determined that there are several ways in which the use of rubrics might be formative. These included transparency, reduced anxiety, improved self efficacy, and support for student self-regulation through reflection, planning assignments, checking progress and reviewing work. While rubrics have been used by students to peer mark (Hafner & Hafner, 2003) and to support student self-assessment (Panadero et al., 2013), much less investigative research has been conducted on the process of engaging students in the early stages of the rubric design process. However, such involvement is likely to reinforce many of these mechanisms of learning identified by Panadero and Jonsson (2013) as the engagement of students in rubric design involves some negotiated processes, so further opportunities for learning might be also expected.

The idea of negotiating with students about their higher education experiences, including assessment, is not new. Terms such as 'co-assessment' and 'participatory assessment' (Quesada et al., 2019), 'co-design' (Northcote & Christian, 2013) and 'negotiated assessment' (Poon et al., 2009) have been used to describe the shared and collaborative process of engaging students in designing an extended range of curriculum-related tasks, including the way in which their learning is assessed. Engaging students more broadly in the assessment process has recently been encouraged by researchers such as Boud and Molloy (2013) who promote the idea of increasing students' capabilities to operate as judges of their own learning. Beyond the work of Boud and Molloy (2013), the idea of self-assessment in tertiary education has recently received considerable attention (Andrade & Cizek, 2010; Panadero et al., 2016; Panadero et al., 2017; Williams et al., 2017). In a recent meta-analysis consisting of 19 studies and over 2000 student participants, Panadero et al. (2017) found that self-assessment strategies can positively influence students' self-regulated learning and self-efficacy.

Thus, research patterns in the field of higher education assessment have recently highlighted the value of engaging students in some assessment processes, especially grading, marking, self-evaluation and the evaluation of others' work. However, extensive collaboration with students has yet to be conducted to engage them in the early stages of assessment design, especially in the practices associated with rubric construction. This direction of research is essential as it is known that rubrics have the potential to be misunderstood by the students for whom they are designed (Matshedisho, 2020). Furthermore, both negative and positive aspects of student-teacher partnerships have been reported (Matthews et al., 2019), and doubts have been raised about the accuracy of assessment rubrics (Sadler, 2009). Together, while past research has identified both value and cautions regarding engaging students in assessment design and grading processes, few empirical findings have established the views of students and teachers when they are given the opportunity to work together in the co-design and co-construction of assessment rubrics in higher education contexts.

The present study is not about self-assessment, but rather about students contributing to the creation of the tools with which they will be assessed. The idea of students and teachers co-constructing assessment rubrics is not the same as students self-assessing, as the former process allows students to have input into designing the assessment tools used to grade their work. This project builds on the work of Rosenow (2014) who is one of very few researchers who have studied and reported the benefits of using class discussions to gain input into the construction of assessment rubrics.

Establishing a model of rubric co-construction required the research team to carefully review the processes undertaken during the course of the project, and revisit the advice and suggestions of higher education assessment experts as well as students and teachers who participated in the study. As pointed out by Chirkov (2015) with regard to all implementation of models, considerations had to be made on the paradigm under which co-construction was to occur. This included taking into consideration the culture, history, and psychology of all participants during co-construction. These considerations were also adopted in the implementation phase of the co-constructed rubric, and in the follow-up and analysis of the process presented in this paper.

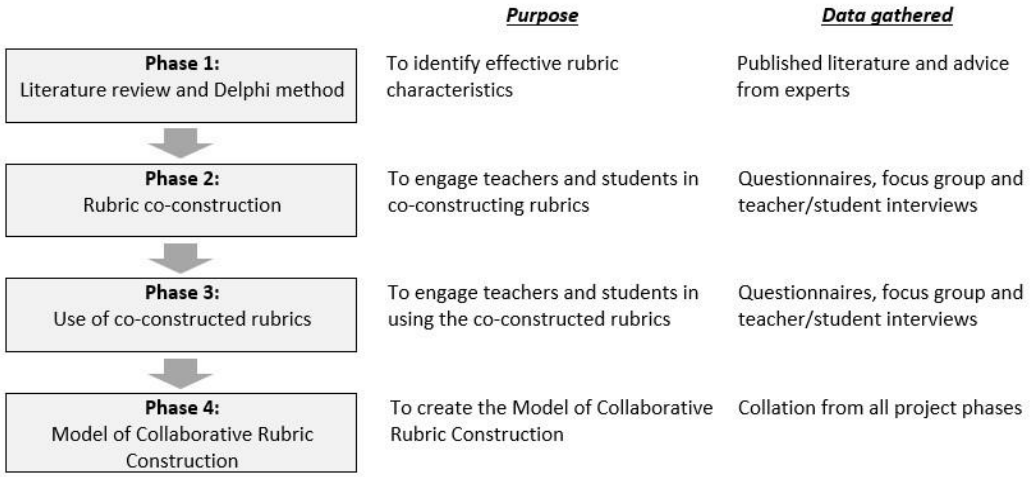
Methodology

This project, steeped in processes that engaged teachers and students in a partnership of assessment design, had the pragmatic objective of developing a model that could be recommended to, and shared with, the higher education sector to successfully facilitate the co-construction of rubrics between teachers and students. In effect, the key and final set of findings of the project, presented in this paper as the *Model of Collaborative Rubric Construction*, was the outcome of a four-phase research methodology.

Methodological approach

This project was comprised of four main phases, each requiring their own distinct data collection methods (Figure 2). The purposes of the first three phases all culminated in the final purpose of Phase 4 in which a *Model of Collaborative Rubric Construction* was formed. Based on this methodological approach, the *Model of Collaborative Rubric Construction* was informed by literature, the views of experts and empirical data gathered from actual rubric users across six higher education cohorts.

Figure 2



Summary of the purpose and data gathered for each phase of this project

Phase 1 of this study involved a structured literature review, conducted around eight themes relevant to rubric construction and use. These themes were: the purpose of rubrics, marking criteria, performance levels, performance descriptors, scoring, feedback narrative, rubric development, and rubric application and use. The literature review established a comprehensive understanding of how rubrics are designed and implemented, with a particular focus on the characteristics of effective rubrics when they are used for assessment purposes in the context of higher education. This literature review was used to produce an Effective Rubric Characteristics Questionnaire (ERCQ) which was provided to a diverse group of international assessment experts. A two-round Delphi method was used to seek consensus from experts in their determination of characteristics of effective rubrics. In round one, 25 experts were consulted and, where there was agreement of 80% or greater, the characteristic was retained. This first stage of the Delphi method resulted in the identification of 75 characteristics of effective rubrics. In round two, the experts were consulted again and, where there was 75% or greater agreement, the characteristics were retained. This resulted in a total of 37 effective rubric characteristics (ERCs) (Williams et al., 2017).

Phase 2 and 3 involved multiple case studies of groups of higher education students and their teachers. These groups worked together to co-construct assessment rubrics for an assessment task that was due for completion in the following semester. To guide the rubric co-construction process, each cohort was provided with a set of instructional protocols and the list of effective rubric characteristics (ERCs) that were developed during Phase 1. During Phase 2, teachers shared rubric exemplars and samples with students to guide their rubric construction. In some cases, partially completed rubrics were used as a starting point for students who were less confident in the rubric construction process. Also during Phase 2, data were gathered from students and teachers before and after co-construction to determine their perceptions of the co-construction process. Focus groups with students, and interviews with teachers, were also conducted to supplement the questionnaire data. In Phase 3, the same cohorts of teachers and students from Phase 2 used the co-constructed assessment rubrics and their views about using such rubrics were sought, again through questionnaires, focus groups and interviews. Outcomes of Phases 2 and 3 have been reported elsewhere (Joseph et al., 2020; Kilgour et al., 2020; Rickett et al., 2019)

In Phase 4, all of the data, expert views and lessons learned from the first three phases were used to create a *Model of Collaborative Rubric Construction*, which is the focus of this paper. The model provides an account of the logistical processes involved in the project and was formed as the basis for disseminating the final findings of this project, including the construction of a website (http://assessment.avondale.edu.au/rubrics/default.html), the presentation of multiple workshops, and various conference presentations and journal publications.

Participants

In Phase 1, the participants included 20-25 international experts in the fields of assessment in higher education and assessment rubrics. These experts were drawn from the processes associated with conducting a structured literature review during which a number of scholars, educators and researchers were identified who had researched and investigated assessment rubrics in higher education contexts. Some of these experts had explored processes in which students were engaged in assessment design or grading.

In Phases 2 and 3 of the study, six cohorts of higher education students and teachers worked in partnership to create and then use a co-constructed assessment rubric. Across the six cohorts, six teachers were involved, along with 41 students. Between three and 10 students participated in each cohort, depending on the size of the original class. Five disciplines across three institutions were represented in the six cohorts including education, theology, nursing, medical radiation science and creative writing.

Limitations

The empirical data gathered throughout this study were not intended to be used to generate practical recommendations for use across generalised cohorts of higher education classes. Instead, the study presents findings from investigations into the way in which six cohorts of students and their teachers engaged with the process of rubric co-construction, and then used the rubrics in practice. As such, the results are presented for interpretation by other higher education teachers and for use with their students where appropriate.

Because this study intended to gather views about rubric co-construction (from the literature, experts, teachers and students), the actual impact of rubric co-construction on student learning, in terms of either student progress or learning achievements, was not included in the scope of this study. Thus, the impact of rubric co-construction on the actual quality of student learning may present other interested researchers with a nominated area of study for the future.

Ethics

Ethics approval for this project was obtained by Avondale University College (lead institution) on 29 September 2016, from University of Technology Sydney on 1st November 2016 (ETH16-0910) and from Charles Sturt University on 7th December 2016 (H16157).

Outcome of the project: Model of Collaborative Rubric Construction

Data gathered during the first three phases of the project were analysed to determine the answer to the final research question which was *What practical, research-informed recommendations can be used to engage students and academic staff (i.e., university teachers) in the collaborative process of designing and using assessment rubrics to promote learning?* Subsequently, the *Model of Collaborative Rubric Construction* was designed to provide guidance to academic teaching staff and course designers who wish to engage in the process of co-constructing assessment rubrics with their students before the process of assessment preparation begins. Because the Model describes a set of practical processes that are grounded in expertise from scholars and previous literature, and

informed by data gathered from students and teachers during the study, the researchers who developed the Model do not claim it is an overarching framework that purports to achieve a particular systematic goal or outcome in any specific context. Rather, the Model illustrates how one research study used a set of practical resources and theoretical ideas to investigate the processes and outcomes of rubric co-construction in a mixture of higher education settings. While the components of the Model can be utilised by other teachers to engage their students in the process of rubric co-construction, they are not necessarily expected to adopt the same processes outlined in the Model; they may choose to adopt some of these processes, adapt others or create their own. Furthermore, for users of the Model who wish to evaluate or conduct research into the process of rubric co-construction in their own contexts, the research methods and instruments required for such purposes can be found within the Model's components.

While the researchers engaged in the development of this Model suggest it may be applied across various disciplines in the higher education sector where assessment rubrics are used to evaluate students' learning, the processes outlined in the Model are likely to require adjustment to suit different contexts. It is expected that the Model will primarily be of interest to teachers and course designers, but it is anticipated that the application of the processes and embedded resources in the Model may also support and guide students in the processes associated with the preparation of their assessment tasks, especially in relation to rubric interpretation.

The Model has taken into consideration the characteristics of effective rubrics, as revealed from extensive literature searches and through consultation with renowned experts from the field of higher education assessment. Furthermore, the Model was informed by evidence-based results, represented by the analysis of data gathered from six cohorts of higher education students and their teachers across five disciplines. Thus, the *Model of Collaborative Rubric Construction* can be seen as a tool that is founded on both theoretical and empirical evidence.

By being designed in a way that outlines the benefits of rubric co-construction along with the processes and resources required to set up and facilitate rubric co-construction processes, the Model acts as a repository of information that can be categorised as both theoretical and practical. The Model, as shown in Figure 2, is based on a three-tiered structure:

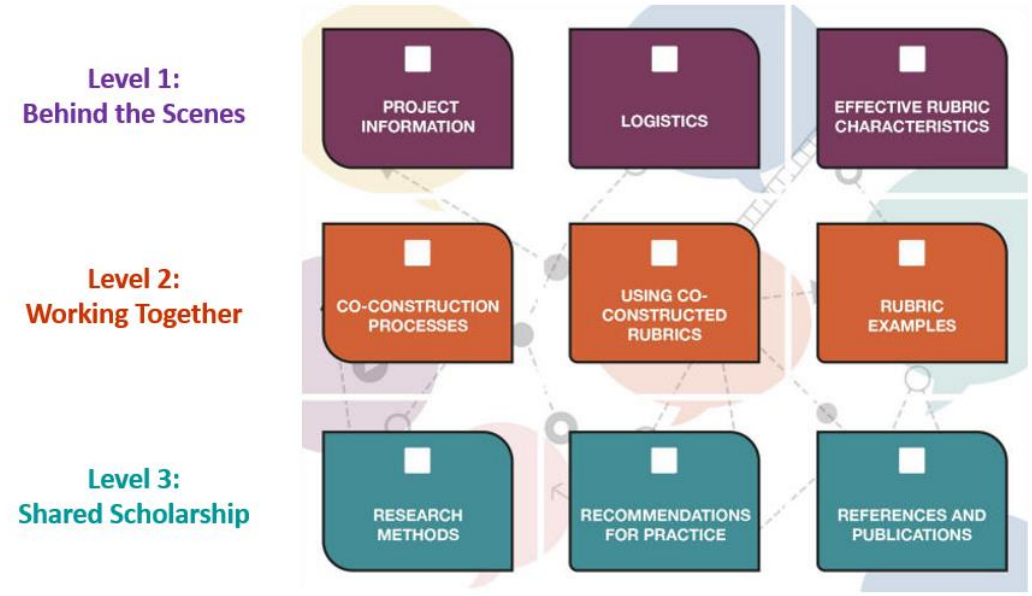
- Level 1 - "Behind the scenes" information, including background and setup information;
- Level 2 - "Working together" ideas for how students and educators can work collaboratively to co-construct rubrics, including processes and resources; and
- Level 3 - "Shared scholarship", including research and publications that have been disseminated about the project.

The online interactive landing page of the *Model of Collaborative Rubric Construction* is located within the project's *Owning the Rubric* website (http://assessment.avondale.edu.au/rubrics/) and allows access to each of the Model's nine components within the three levels (Figure 3).

When considered together, the nine components of the Model provide the user with a comprehensive collection of theoretical, methodological and instructional information about rubric co-construction. While the Model provides a one-stop-shop for guidance on how to implement a full rubric co-construction process from rubric design through to rubric use, advice is also contained in the Model that guides educators in how they can prepare themselves and their students for engaging in rubric co-construction processes. For example, the Level 2 components of the Model provide protocols, rubric samples and rubric design guidelines to assist students during rubric co-construction processes. The Model clearly focuses on the processes of collaboration that underlie the partnership between students and their teachers working together to create rubrics, but it also offers pedagogical

advice for rubric development through the presentation of a set of 37 effective rubric characteristics (Williams et al., 2017). In these ways, the Model represents a 'starting-point' for educators to explore aspects of rubric co-construction that may be fully or partially implemented. Additionally, users of the Model will also find numerous suggestions beneath the Model's homepage that offer future directions for applied research.

Figure 3



The Model of Collaborative Rubric Construction
(Figure located at:
http://assessment.avondale.edu.au/rubrics/10model_of_collaborative_rubric_co.html)

Recommendations for practice

Based on the results of this study and the lessons learned by the researchers throughout the project, a number of practical recommendations are provided for those interested in introducing co-construction processes to their pedagogical practice. These recommendations are outlined below in conjunction with other relevant research in the field of higher education assessment. Many of these recommendations are housed in the *Model of Collaborative Rubric Construction*, notably in the 'Recommendations for Practice' component of Level 3 of the Model, and are presented here with suggestions of how they could be implemented to potentially impact the process of rubric co-construction. The recommendations for practice that emerged from the project are presented below with some cautions in light of considerations of the challenges present in higher education contexts that may influence their implementation.

Traditional models of higher education typically have noticeable boundaries between the roles of academic teaching staff and students. These have become blurred in recent years with the increasing pedagogical emphasis on *students as partners* in education who are capable of co-creating and, indeed, transforming education (Dunne et al., 2011). Nevertheless, it is difficult to break long-standing patterns of practice and move past strongly held ideas (Marquis, 2017; Marquis et al., 2017). Consequently, staff, administrators and institutions may be reluctant, or uncomfortable, to

allow students to participate in the co-construction of rubrics which are perceived as part of the academic domain. Furthermore, some teachers may feel that allowing students to be involved in determining how they will be graded will in some way compromise academic standards. To prevent any reduction of academic standards, these views need to be acknowledged and discussed by those planning to engage in rubric co-construction processes before the co-construction begins. For co-construction to be successful, academic teaching staff must also be open to the views of their students and establish a climate where student input is heard and valued. In some cases, further modifications of the processes suggested in this article may be required.

The logistics associated with the process of co-construction should also not be underestimated. Finding the best time of semester to undertake the co-construction was particularly challenging. Engaging in the process too early in the semester, prior to the subject being taught, means that students are only just engaging in new subjects and unlikely to want to engage in subjects related to a future semester. However, engaging too late in the semester means that students may struggle with mounting pressure associated with completing other assessment tasks (Pitt et al., 2018). As a result, in our study, attendance at co-construction sessions reduced over the period of the study. Equally challenging was the need to identify and contact students prior to starting, or even enrolling, in the subject where co-construction would occur.

In light of these challenges that are present in most higher education teaching and learning contexts, it is recommended that educators consider some important questions to determine their readiness for the co-construction process. Firstly, it is important to establish whether the institutional culture is flexible enough to enable the process of rubric co-construction to take place (Porter et al., 2014). A review of the timelines for subject documentation may help answer this question and provide practical suggestions for implementation. If the institution requires documents, including rubrics, to be completed six months in advance, or earlier, without the possibility of change, then co-construction will be difficult. In some situations, permission may be granted for teaching staff not to include a fully completed rubric in their subject documentation but, instead, to provide a statement that the rubric will be co-created with students during the semester it is taught. Some negotiation with the administrators of the course or discipline may be required to provide the necessary flexibility.

Assuming an institution provides opportunity for co-construction to occur, it is important to determine whether assessment tasks in a subject are suitable for rubric use. This study found that some mathematics and science subjects, where there are precise right or wrong answers, do not necessarily lend themselves well to rubric use, while research tasks, including written works, oral presentations and projects are considered ideal for rubric use (Reddy & Andrade, 2010). A further consideration in suitability is the level at which the subject is offered. Subjects offered to first year students may present challenges on several fronts. Since students are just beginning their studies, it may be difficult to contact them prior to the beginning of the semester. In addition, students in their first year may be anxious about their studies and may feel overwhelmed or uncertain about their judgement. First-year students enrolled in higher education are also less likely to understand higher education or discipline-specific discourse and expectations than students who are more advanced in their studies (Mah & Ifenthaler, 2018). Co-construction may therefore be better suited to subjects which are taught in, or after, the second year of programs, and confined to just one of the assessment tasks.

Another area for careful consideration is the logistics of the co-construction process, including the availability of both staff and students. The results of our study, from both teaching staff and students, note that careful planning is essential to the success of rubric co-construction. We found it helpful to begin in the semester prior to the subject being offered, but this required the ability to identify in advance the students who would be taking the subject. This is clearly easier to do in programs which

are fixed or that follow a definite sequence. We also found it was important to be strategic in the way students were invited to be part of the process and communicated with during the co-construction process. Phoning or texting students on their mobile phones was more effective than using their student email address. The timing of co-construction sessions also needs to be agreed upon at the start of the co-construction process. For example, academic calendars represent periods of lighter and heavier workloads which may not coincide for students and teachers. Sensitivity to student workload is particularly important for consistent student involvement. For example, we found avoidance of peak-pressure periods during practicums and clinical placements, or times of semester when multiple assignments are due, was essential to student participation. Since participation in the study was voluntary, discussion with the students themselves can help identify the best times of student availability.

To ensure there are no perceptions of inequality, or special treatment, it is recommended that all students are given the opportunity to be involved in the co-construction process regardless of whether they are participating in on-campus classes or studying by distance. It is likely that not all will choose to be involved, however, inviting all students to participate is seen as a proactive way to prevent complaints about inequality. It should be noted, however, that while some students who participated in co-construction were concerned that other students might have perceived inequity associated with their involvement, there were no complaints from teachers or non-participating students about this issue during the project reported in this article. To compensate for this perceived issue of inequity in future co-construction processes, students from a previous cohort could be consulted about the rubric's design in addition to, or instead of, students from the current cohort.

Prior to starting the co-construction process, it is also important that teachers are familiar with both the course learning outcomes and the learning outcomes of the subject, as well as any requirements specified by standards-based bodies (such as nursing or teaching statutory authorities) that may inform the marking criteria included in assessment rubrics. Providing copies of the relevant parts of these documents to students helps them understand that rubrics should be constructed with an understanding of the need to achieve these outcomes. It is also vital that those involved in the process should have a clear understanding of the features of good rubrics. To this end we recommend the Effective Rubric Characteristics (ERCs) that form part of the *Model of Collaborative Rubric Construction* as a helpful set of guidelines. These ERCs are featured in (Williams et al., 2017), along with an outline of the process used to develop the ERCs.

While the *Model of Collaborative Rubric Construction* outlines a complete process for co-construction of rubrics, academic teaching staff may adopt only parts of the model or adapt the model to their own educational context. Those who are concerned about involving students in a co-constructive process may want to begin simply by taking the time to better understand how students perceive the rubrics which they have developed, and how they understand the language which has been used in the rubric's marking criteria and performance descriptors. Those more comfortable with the idea of involving students may adopt more extensive co-construction practices.

Conclusion

Building on the reported outcomes of this project, there are multiple options for future research directions into the use of assessment rubrics for learning purposes in higher education. Our project engaged students in the process of assessment design with their teachers, but students were not involved in marking, moderation or calibration processes. This potential to incorporate an additional assessment nexus, where both students and teachers work in partnership in the grading process, may present further research prospects. We invite other researchers to consider replicating our research using the protocols and data gathering instruments presented in the *Model of Collaborative Rubric Construction** to further explore the impact of rubric co-construction on teacher and student

perceptions of effective assessment practices. We also suggest that there are many possibilities for future research into the impact of rubric co-construction on the actual learning outcomes of students by investigating potential correlations between student participation in the rubric co-construction process and the grade they received for their submitted task. Lastly, we are keen to hear from other researchers who are interested in trialling our *Model of Collaborative Rubric Construction* in other contexts, or those who plan to conduct further research on rubric co-construction that may provide additional opportunities to further develop the Model.

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* http://assessment.avondale.edu.au/rubrics/10-model_of_collaborative_rubric_co.html

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