A critical reflection on the role of success criteria in Peer Assessment to facilitate pupil learning and performance The STeP Journal Student Teacher Perspectives Copyright © 2018 University of Cumbria Vol 5 (1) pages 30-39

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#### **Abstract**

According to research, peer assessments in education can significantly contribute to the learning experience of pupils through establishing motivation, confidence and essentially dynamic higher order learning skills. This inquiry specifically focussed on exploring the role of success criteria within peer assessment as an effective learning tool for pupils. The research comprised of a group of 30, year 7 science pupils from an Ofsted rated "outstanding" school. Research findings support the use of success criteria as an effective learning tool, so long as it is used correctly. It suggests that the efficacy of success criteria is dependent on its transparency, rigidity and explicitness. The findings from the study reveal that pupils are more likely to connect with their cognitive and intellectual processes to reach suitable judgements in the absence of rigid, explicit success criteria – and that the use of broader guidelines is more appropriate, to enhance and guide the learning of pupils.

#### **Keywords**

Peer assessment; success criteria; reflective skills; cognitive skills.

#### Introduction

Assessment for learning (AfL) plays an integral role in the teaching and learning process of pupils. This formative assessment technique has been found to improve pupil performance through enabling instant feedback to pupils during their active learning processes. It involves the learner addressing errors and misconceptions prior to being summatively assessed. Questioning, feedback, self and peer assessments are critical examples of assessment for learning in practice.

Self and peer-assessments promote and encourage pupils to become active independent learners, through striving to establish motivation, confidence and essentially dynamic higher order skills (e.g. reflective and critical thinking). Self-assessment in education involves students assessing their own academic performance against a pre-determined success criteria, as opposed to peer assessments whereby pupils take on the responsibility of assessing their peer's work against a pre-defined success criteria (Bourke & Mentis, 2013; Reinholz, 2015; Topping, 2009). Both assessment tools require students to provide constructive feedback, reflect and subsequently set targets (Strijbos & Sluijsmans, 2010). Essentially, this provides them with improved learning opportunities and a deeper understanding of what constitutes high quality work (Karami & Rezaei, 2015).

Self and peer-assessments employ a constructivist learning approach – whereby pupils are required to actively participate in the design, choice, criteria and feedback of assessments (Piaget, 1971 cited in Inhelder & Weaver, 2000; Vygotski; 1962). Self and peer assessments effectively contribute to the augmentation of the pupil's critical and reflective skills and ultimately their confidence as learners – and should thus be regarded as a "key element of higher education courses" (Logan, 2009; Ndoye, 2017. p.30). In principal, both practices are deemed exceptionally useful in enabling effective durable learning achievements. However, as part of this practitioner inquiry, I will solely focus on whether the sharing of success criteria within peer assessment can facilitate the learning and performance of pupils – with suggestions for good quality teaching practices.

#### Citation

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#### **Literature Review**

Teaching and learning can be significantly enhanced through the improved academic engagement of pupils (Project Tomorrow, 2010; Willms, Freisen, & Milton, 2009). Peer-based collaborative learning (e.g. peer assessments) from within a supportive environment promotes pupil engagement. It also contributes to the effectiveness and durability of pupil's learning achievements (Ndoye, 2017).

According to Logan (2009), peer assessments promote deeper learning by enhancing pupils' understanding of assessment criteria. However, to organise for a successful peer assessment, teachers are required to scrutinise and justify the objectives, goals, and grading scales – thereby strengthening their own understanding too (Topping, 2009; Van den Berg et al, 2006; Vickerman; 2009).

Clarification, elaboration and exemplification of assessment criteria (e.g. model answers and checklists) can help to better the student's process of application and interpretation of the success criteria (Vickerman, 2009). Appropriate training, may involve the layout, organisation, objectives and possible developmental strategies. According to Evans (2013) the sharing and discussion of the success criteria can positively contribute to the learning outcomes of pupils, so long as the teacher explicitly emphasises its worth and purpose in the learning process. However, the teacher must also consider the inherent risk of student dependence and limited thinking as a consequence of providing rigid instructional guidance. Explicit guidance can impair the quality of learning and restrict one from developing lifelong learning skills (Crook, Gross, & Dymot, 2006; G. Crisp, 2012). Sadler (2009) stresses the importance of pupil independence through promotion of self-regulatory skills and conceptual understanding of quality learning.

The sequence, structure and design of success criteria should advocate quality understanding of the technicalities and interpretation of assessment criteria; with adequate awareness and reasoning for subject content (Vickerman, 2009). Ndoye (2017) argues the benefits of a detailed criteria in the generation of quality feedback, promotion of successful collaboration between peers, active learning, autonomy and engagement in life-long learning. However, Canty, Seery, Hartell, Doyle (2017) claim that over-defined success criteria can in-fact diminish pupil engagement, increase convergence to open-ended questions and limit exploration of the subject domain.

Sadler (2009) approves of a holistic approach; for its role in developing crucial cognitive learning skills such as: critical reasoning, complex problem solving and integration of knowledge and innovation; essentially, maximising the learning potential of pupils. He argues against the holistic judgement of pupils being governed by a mandated criteria; and rather encourages them to connect with their intellectual processes to attain a suitable appraisal (Canty, Seery, Hartell, Doyle, 2017). According to their findings, 75% of the students surveyed applauded the removal of explicit assessment criteria, for its benefits in allowing them to explore a wide range of solutions with guidance from broad guidelines. Likewise, 70% of students felt both challenged, yet empowered to establish their own values relative to the subject domain, as opposed to relying on a set of comforting rubrics. Such are the qualities reflective of experienced teachers involved in multicriteria judgements of pupils' works and abilities (Sadler, 2009).

Involving students in the developmental process of success criteria is critical for ensuring objective judgements on the quality of peer-work (Brindley & Schoffield, 1998; Chen, 2010; Papinezak et al, 2007). Their participation in the creation of success criteria, is likely to improve their understanding of the methodology; resulting in improved objectivity and quality feedback (VanShenkhof et al, 2018). With the process of success criteria being more participative, pupils are empowered to take ownership of their own learning and thus enhance the learning outcomes associated with peer-assessments (VanShenkhof et al, 2018). Canty, Seery, Hartell and Doyle (2017) found supporting evidence for this.

Up-to 80% of the pupils surveyed, were convinced that their role in the generation of success criteria allowed them to feel responsible of their own learning. 70% of these students found that this approach to assessment also had a positive impact on their learning experience.

Rust et al (2003) and Bloxham and West (2004) favour this approach, due to its benefits in allowing pupils to clarify and internalise their learning goals. According to Gibbs et al (2004), peer assessment generates opportunities for appropriate learning activities (e.g. establishment of clear goals, criteria and standards of assessment), essentially contributing to the enhancement of learner performance, even in the absence of feedback. Pupils involved in the reflection process of peer assessment also reported increased development of broader transferable skills, which would be considered useful by employers of a professional practice e.g. clinical educator, practicing physiotherapist (Langan, 2005; McGarr & Clifford; 2013; Petty, 2009).

To date, the reliability and validity of peer-generated grades is challenged by researchers, as a consequence of it being influenced by social processes. Friendship bonds, individuals' perceptions of criticism, collusion for submission of average results, social loafing or free rider effects are some issues of concern in relation to peer-assessment (Ndiku Makewa et al, 2014; Norcini, 2003; Winter, 2009). Sadler and Good (2006) found satisfactory levels of reliability and validity in over 70% of the studies explored when it involved effective negotiation and joint construction of assessment criteria with its learners. Increased reliability was noted in peer-assessments where pupils were required to assess multiple discrete dimensions using clear explicit success criteria (Falchikov & Goldfinch, 2000; Lindblom-Ylanne et al, 2006). Although, Hendrickson, Brady, & Algozzine (1987) found that no correlation was established between students' acceptance of criteria and the subsequent reliability of peer marking. Likewise, Mowl and Pain (1995) found that reliability was inadequate, despite careful supervision, training and involvement of learners in criteria generation.

However, Devenney (1989) argues that the role and function of peer assessment differs to that of a teacher's assessment and thus high reliability is not usually of much concern. Likewise, interpretations of criteria and frames of reference, will continue to vary for different individuals – and so the validity of peer assessment will always remain a challenge for research (Evans, Elwyn and Edwards, 2004).

#### **Research Design**

This practitioner's inquiry assumes a qualitative interpretivist approach. It is based on a case study involving a group of 30 science pupils (female) aged between 10-11 years from within an "outstanding" humanities specialist school in the north-west. Case studies enable one to obtain rich analysis of contemporary phenomena from within a contextual perspective (Zainal, 2007). However, sceptics argue that the research method is deficient of rigour, susceptible to researcher bias and impotent to draw generalisations from (Yin, 2011). Cynics would thus question the generalisability of the findings from this research beyond the classroom of the 30 female pupils from year 7 within that specific "outstanding school". An appropriate solution to the issue of generalisability would be the deployment of a meta-analysis research methodology. The statistical procedure entails the amalgamation, summary and review of a wide range of previously conducted quantitative research – allowing for in-depth critical evaluations and comparisons, thereby improving the objectivity and statistical power of the research (Hedges & Piggot, 2001). In an attempt to maximise the validity of the findings, the inquiry entailed triangulation of different data collection methods – an elaboration to which will be provided below (Mukherji & Albon, 2015).

A sequence of activities were prepared to generate quality data on the use of sharing success criteria in peer assessment. Primarily, the research group was divided into groups of three. Thereafter, each group was assigned a 6-mark question on sheets of A3. Students were permitted to work in their groups to devise an appropriate solution (for 5 minutes). The students were then asked to exchange

their sheets with another group – after which they were asked to either justify or improve upon their peer's response using a different coloured pen. Thereafter, the pupils were asked to exchange their sheets for the last time with a different group. On this occasion, they were provided with a mark-scheme, using which they were required to assess the response of the pupils from the last rotation. As an extension, the more able students were challenged to develop and expand upon the model answer.

The round table assessments served to assess the student's prior knowledge and understanding of compounds. Thereafter, the feedback and comments from the follow-up exercise (involving the mark-scheme) gave an indication of the extent to which the students' understanding of compounds had improved. The extension task served as a confidence measure, to further satisfy and reassure the findings from the research.

The clarity of success criteria is partially dependent on its layout and design. The criteria must be concise with a clear focus to accelerate the progress and achievement of pupils towards their learning outcomes. This was considered during the construction process of the success criteria and comprised of clear, measurable, relevant goals and objectives.

Similarly, the efficacy of peer assessment can be managed through explicit communication and modelling of the entire procedure involved (Evans, 2013). This then serves as guidance for pupils, to better their understanding of the necessary skills and concepts associated with assessments. Establishment of the learning outcomes in conjunction with the assessment criteria enables pupils to critically reflect upon their own practice - on evaluation and consideration of their peer's alternate approach to the assessment – thereby promoting pupil independence and teacher facilitation.

In order to improve the validity and reliability of the data collection methods for this research, the above guidelines were implemented to an adequate degree. However, time was limited and therefore students were not provided with as much training as I had hoped to deliver. As a compromise, these variables will be considered during the review and summary process of this research.

Pupils were required to work in groups during the round-table assessments and the subsequent peermarking tasks. Pupils' dispositions can ultimately influence the efficacy of the task outcomes, as a consequence of it being influenced by the student's willingness to contribute and collaboratively engage with their classmates (Struyven et al, 2005; Vu & Dall'Aba, 2007). Likewise, pupils may struggle to access complex higher-order skills – thereby causing a negative impact on their reflection process and confidence in providing comprehensive feedback (Papinezak, Young and Groves, 2007).

However, the method by which the task of peer assessment is introduced to pupils, can have an impact on their attitudes and cognition (Sandvoll, 2014). Thus, if pupils perceive the task as a formative assessment measure or as an assessment for learning, they are likely to actively explore strategies and mechanisms that will positively contribute to their learning experience and performance. A formative assessment approach was thus taken for this research.

According to research, a positive correlation is established between self-regulatory learning -from within a within a supportive stimulating learning environment - and pupil academic performance (Banarjee & Kumar, 2014). Before carrying out the intended practitioner's inquiry, ethical issues were considered using Hammerseley and Triaianou's (2014) proposed guidelines on "Ethics and Educational Research". The key principles addressed were:

<u>Informed consent:</u> Participant Information Sheets were designed and distributed to the 30 students to inform them of the nature of the study. Students were then given the opportunity to decide as to whether or not they were happy to participate in the research.

<u>Protection of participants:</u> The nature and aim of the research was disclosed to participants. Pupils were reassured that the outcomes of the research would help to inform their teacher's future planning and delivery of lessons.

<u>Confidentiality:</u> Both the school and students were assured of absolute anonymity, to prevent themselves from being identified as participants of the research.

<u>The right to withdraw:</u> Students were informed of their participation being entirely voluntary; and that they reserve the absolute right to withdraw from the research.

#### **Results and Discussion**

The aim of this research was to identify how the sharing of success criteria in peer assessment facilitates pupils' learning and performance. Qualitative coding was used to analyse the data generated from the research. The analytical process entailed categorisation of distinct concepts and themes. Prior to data collection, a set of "pre-list" of codes was compiled – to direct and guide the research. Using the composed data, "emergent codes" were then developed on similar themes and concepts. Codes were refined to enable enhanced classification of the data – this entailed revision, addition, subtraction and expansion of the coding categories. A systematic approach was adopted for data coding. It entailed asking a series of question; for example, "what information is being conveyed?" and "what issues of concern are being expressed?"

The process of data analysis, revealed a variation in the responses of pupils. Co-ordination of responses enabled one to adequately distinguish between the benefits and limitations of sharing success criteria in peer assessment. Primarily, during the round-table assessments, the majority of the students showed adequate understanding of the topic with majority being able to associate the diagram with the term compound. Pupils were also able to define the term compound as a substance comprising of two or more elements — and many identified the names of the two compounds (correctly). Many students referred to scientific terminology with the correct spellings. Students' efforts were apparent in ensuring the layout and format was grammatically correct. However, misconceptions associated with the scientific keywords were also established from pupil responses e.g. the difference between an atom and element.

Pupils were then asked to use the model answer (mark-scheme answer) to peer-mark. The purpose of this activity was to determine whether the pupils understanding of "compounds" improved, having shared the success criteria. Students displayed a good understanding of how to access the mark-scheme and make accurate judgements on their peer's work. In-depth discussions took place amongst group members, relating to the mark-scheme with justifications on where and why pupils should be awarded specific marks. Pupils proceeded to the extension task and actively engaged with negotiating the mark-scheme and how it can be developed. Pupils accurately identified that a correct statement supported by an explanation secured two marks each and therefore listing three statements, with their respective supporting explanations would suffice to secure the 6 marks available. Likewise, pupils recommended that each statement should be further elaborated upon through linking it to the example in the question "iron chloride". A suggested response was: "The diagram above represents a compound – iron chloride. This means that it is a substance made from two or more elements. The elements iron and chlorine combine to form the compound iron chloride".

During this research, two exceptional responses were noted from two different groups during the round table assessments. One group had correctly identified that based on the evidence, one would

assume that the substance is in the gaseous state, since its molecules are separate from each other and randomly arranged - however, this is not typical of an iron chloride salt at room temperature (it is a solid). Likewise, a second group derived the chemical formula of the compound "iron chloride" through identification of the ions associated with each element. Subsequent analysis then followed, and pupils within the group accurately concluded that three chloride ions would be required to counter balance the charge on the iron. Pupils justified their claim with the chemical formula FeCl<sub>3</sub>. For year 7 pupils, to independently derive such a response is an outstanding achievement – as their responses highlight and reflect upon the students' conceptual understanding of the concepts of science that go beyond the recommended level at KS3. The responses (aforementioned) also served as evidence for pupils connecting with their intellectual processes, to investigate and further explore a wide range of solutions to reach a suitable judgement (in the absence of criteria).

Unfortunately, these statements although correct, were not included within the mark-scheme response - as a consequence, students became confused and dissatisfied with their otherwise accurate responses. As Sadler (2009) suggested, pupils must not be limited to a specific set of criteria as it prevents them from the exploration of crucial cognitive skills and diverse solutions. A holistic approach should be favoured with broad guidelines as a guidance for pupils – this empowers pupils to establish their own values relative to the subject domain (Canty, Seery, Hartell, Doyle, 2017). The criteria should serve to facilitate the learning of pupils as opposed to dictating to them. Based on the experience above, one can infer that the sharing of **explicit** criteria can have an adverse impact on the learning and performance of pupils.

Data collection comprised of a sequence of consecutive activities. Exceptional planning was required to ensure a smooth successful flow of the events. To carry out the research tasks at an appropriate pace, it was essential that the basics of the topic was imparted to the pupils in the lessons prior to the research. This also provoked pupil confidence, encouraging students to willingly partake in the exercise. The co-operation of pupils contributed to the generation of quality rich data, effectively allowing the researcher to compare, scrutinise and evaluate pupils' understanding of the topic "compounds" prior to sharing the success criteria and after sharing the success criteria.

Fortunately, the pupils were accustomed to collaborative group work and peer-marking from previous school experiences. Briefing was thus easier, and the entire procedure was managed over two periods (each period lasting 55 minutes). In Period 1, participant information sheets were distributed and the necessary skills and training required for the activities planned was communicated to pupils. Pupils were informed of the purpose, objectives and intended outcomes for the research. Methods of delivering and receiving constructive criticism based on the success criteria were also disclosed to pupils. Initially, there were concerns relating to student participation - however, this was instantly addressed through an organised group set-up whereby pupils were grouped, according to their competencies and dispositions. Prior to the task, rules and expectations for working collaboratively were briefly discussed. Both myself, and the teacher circulated round the classroom to maximise pupil engagement.

The research study employed a qualitative paradigm. A qualitative design was useful in allowing one to gain deeper insight into the learning capabilities and performances of pupils - based on observations and interpretations of features associated with formative assessments. Furthermore, the research assumed an inclusive approach to data collection, with participants being given the opportunity to communicate their perceptions on success criteria in peer assessments, through their contributions to activities. Pupils showed greater levels of motivation, exploration and retention of subject knowledge during the group work activities (Barkley, Cross & Major, 2014; Davis, 1993). The nature of the tasks stimulated traits of critical thinking, creativity and diverse applications of knowledge amongst pupils (Elgort, Smith & Toland, 2008). Likewise, during the round-table assessments pupils

referred to scientific concepts beyond their curriculum (ions and charges associated with compounds), indicating higher levels of deeper thinking.

However, there are also limitations associated with the research paradigm. Typically, the research is based on a small sample size, and the data generated is not tested for statistical significance, as a consequence of which the findings cannot be generalised to the wider population with as much confidence as with data produced through quantitative measures. Likewise, the data generated from this research was based on the researcher's interpretation of pupils' responses – lacking objectivity and scientific validity. It is possible that the findings of the research may be subject to researcher bias, as a consequence of the researcher's predispositions – however this bias is a likely consequence of their appreciation and acknowledgement of pre-existing research.

The research findings, may be subject to demand characteristics as a consequence of participants being aware of the nature of the research. Pupils may (unconsciously) alter their behaviours and response in accordance with their interpretations of what they believe is favourable to the researcher (response bias). This can affect the reliability of the findings; making it difficult to deduce accurate conclusions.

In principal, the methodologies were suitable for the intended research as it served to generate data relative to the project. However, additional methods would be considered in the future to obtain further quality rich data; such as questionnaires, interviews and meta-analyses. Obtaining student feedback through questionnaires would have been beneficial in obtaining instant data on the use of success criteria in facilitating pupil learning and performance. Questionnaires can generate valuable objective data, uninfluenced by the researcher's interpretations, thereby enhancing the reliability and validity of the findings. Interviews are more potent in yielding profound narrative data, enabling researchers to ascertain and interpret people's perceptions with higher levels of confidence (Kvale, 2006). Alshenqeeti (2014, p.1) provides further validation of interviews as a research method, for generating detailed descriptions of "individuals and events in their natural settings". A meta-analysis approach to the research findings would have enabled in-depth critical evaluations and comparisons of multiple data - focussing on the use of success criteria in peer assessments – ultimately enhancing its credibility and statistical power (Hedges & Piggot, 2001).

### Conclusion

A positive impact of peer assessment in advocating pupil engagement is acknowledged. Yet, the efficacy of the assessment practice is highly dependent on its operating mechanisms such as: the quality of feedback, collaboration and pupil's perceptions. Research also highlights the fundamental role of success criteria (in peer assessment) in facilitating the academic learning and performance of pupils. The benefits of using success criteria to advocate pupil learning is undeniable, however, data from this inquiry reveals that the extent of transparency and explicitness (associated with the criteria) may have an adverse effect on the student's quality of learning. The data conforms to the past findings of Crook, Gross, Dymot (2006), G. Crisp (2012) and Sadler (2009) - they implied that the rigidity and explicitness of criteria restricted pupils from connecting with their cognition, reflection and intellectual processes.

The implications of this research are for educators to promote and implement sustainable forms of assessments like peer assessment – from within a secure, collaborative and co-operative learning environment. Instructors should provide regular training (to pupils) on the entire procedure of peer assessment – with opportunities for students to negotiate the success criteria in terms of its sequence, layout or objectives. Students should also be given the opportunity to evaluate the processes involved in their learning with considerations for developmental strategies – so to promote learner independence and accountability. Practitioners should also acknowledge the inherent risks of

impairing the learning experience of their pupils as a consequence of sharing a rigid, highly explicit success criteria.

Overall, this inquiry was useful in allowing one to critically reflect upon the value and effectiveness of success criteria in peer assessment. As a continuation from this inquiry, the impact of peer-feedback on the learning achievements of pupils would be a suitable area of research and would thus be considered (as future research).

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