Inducting ITE students in assessment practices through the use of comparative judgment.

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ABSTRACT

A new curricular framework, presented by the Department of Education and Skills (DES), (2015) implements an assessment strategy that has changed from a predominantly summative to a more formative integrated approach. With the emphasis being placed on the process of learning rather than the product, it is critical that the assessment practices and instruments created and employed by the teacher have the capacity to capture authentic evidence of student learning and capability for the purpose of both formative and summative assessment. The tensions between formative and summative assessment outlined by Black and Wiliam (1998) raise considerable concerns for teachers and learners. Striking a balance between the forms of assessment and their impact on teaching and learning is of critical importance. This also has implications for Initial Teacher Education (ITE) where undergraduate teachers endeavour to become literate and skilled in assessment. This paper focuses on a strategy that uses peer assessment, facilitated through comparative judgment (Kimbell, 2011), to help student teachers identify qualities of capability, establish constructs of quality and standards and develop skills in generating formative commentary that will help move the learner forward. This paper describes an explorative case study that observes the practices and outcomes of student teachers as they engage in assessment related tasks. The study tracks 59 Technology ITE students as they respond to a learning and assessment task, establish criteria and standards for assessment, and generate formative feedback for learners. Data collection for the study will be predominantly qualitative in nature focusing on the outputs student teachers made in relation to delivering effective formative feedback on a learning and assessment task. Quantitative data from the comparative judgement assessment instrument will give further insight into the assessment practices of the participants on an individual and group level. The results of this study will present an analysis of the nature and quality of the feedback created by the student teachers highlighting potential gaps in the knowledge and skills required to deliver effective feedback in the classroom setting.

Key Words: Formative assessment, comparative judgment, feedback, peer assessment

Introduction

The Irish second level education system is going through a period of significant curricular reform. This is being conducted in two phases, the first of which is a reform of the curricular provision at lower post-primary level, i.e. Junior Cycle. The nature and structure of the new approach to Junior Cycle education was outlined by the Department of Education and Skills (DES) in 2015. This document presented a new focus on key skills and attributes that are now central to teaching learning and assessment. The reform also placed emphasis on the need for pedagogies and teaching styles that are more student centred where it is now expected that students take a more central role in their learning (DES, 2015). 2019 will see the introduction of new specifications in the technology subject domain. A suite of four technology related subjects will be rolled out each making its own contribution to the development of technological capability and literacy. A central element to the new reform is the way in which learners will be assessed and the role that the teacher will play in the assessment process. The new curriculum places emphasis on assessment as a more integrated part of teaching and learning. Traditionally the emphasis of assessment has been on summative practices with the teacher's role in the assessment being focused on the preparation of the student for the examination or testing process. The new approach encourages a classroom where learners are supported in the acquisition and application of knowledge and where teacher planning is focused less on examination preparation and more on collaborative planning for teaching and learning (DES 2015). The model of assessment at Junior Cycle level sees a dual approach implemented that involves both classroom-based assessments (CBA's) and a summative assessment that is externally set and assessed by the State Examinations Commission (SEC).

The introduction of CBA's is new in the Irish context and it is the first time that teachers are required to pass judgment on their students that will be recorded as part of the state certified Junior Cycle Profile of Achievement (JCPA) award. Two CBA's will be carried out during regular class time, one in year 2 and the second early in year 3 of the cycle. The nature of the CBA's is to be both formative and summative, providing teachers and pupils with a snapshot of where the pupils are in their learning and identifying critical aspects of their skills and capability that they will need to work on such that they can realise their full potential in the relevant subject and discipline area. This change from a predominantly summative to a more formative integrated approach brings with it challenges for teachers and teacher education providers.

The new assessment approach through the CBA activities requires the teacher to plan and implement teaching, learning and assessment activities that will generate evidence of learning. This evidence, and any conclusions that will be drawn from it, will serve three functions. The first is to provide a benchmark of student ability at a particular point in the junior cycle. Techers will have to make a judgment on learners work presented in the CBA, mapping it onto features of quality (that will be set by the National Council for Curriculum and Assessment, NCCA) and resulting in an output at one of four level descriptors: (1) Yet to Meet Expectations, (2) In Line with Expectations, (3) Above Expectations and (4) Exceptional. The second is that the evidence gathered through this CBA activity will be used to inform the learner and their parent/guardian of their progress to date and provide them with formative feedback on both their current level of ability and potential future actions that will help them progress. The third purpose is that the CBA activity will inform the teacher in relation to their learners' ability and progress such that they can plan future pedagogical strategies and/or interventions that will address any gaps or deficiencies illuminated through the CBA. This paper focuses on one element of a larger study that looks at how teachers and learners are engaging with and experiencing all three purposes or functions described above. The perspective of this paper will look at the preparation of Technology ITE students to engage with the second function of the CBA where teachers will have to provide formative feedback to learners to help them move forward in their learning. This challenge is significant for Technology ITE students as the nature of technology related activity is often diverse and non-routine requiring teachers to give feedback that is constructive in moving the learning forward

but without being leading or prescriptive. This study posed the question: What is the nature of the feedback Technology ITE students generate in relation to a CBA task and does comparative judgment present opportunity for Technology ITE students to develop knowledge and skills that will benefit them in future assessment practice in their classroom?

Theoretical Framework

The role and value of formative assessment in any educational transaction is well documented. Black and Wiliam (1998) report, that the effectiveness of formative assessment is dependent on the quality of feedback and the interaction between student and assessor. Yorke (2003), Orsmond et al. (2000), Sadler (1998; Sadler 2009) and Black and Wiliam (1998) present the teacher, peers and the student themselves as potential contributors to the formative assessment process and outline the importance of strategic planning for the integration of formative assessment into any learning activity. To this end Technology ITE students must become aware of the significance of effective integration of assessment as part of the planning for learning process and develop a skillset that will help them draw inference and effectively communicate their evaluation and judgment on the evidence of learning from the CBA. The role of the learner and the need for the development of appropriate assessment skills such as the capacity to self-assess and judge quality, receive and interpret feedback and set goals based on feedback are acknowledged as being a significant and integral part of the assessment process but are beyond the scope of this paper. Thus the focus will be on the Technology ITE student and preparing them for their classroom practice. To this end the following elements were addressed in the study:

Qualities: To generate quality feedback the teacher must first have a sound knowledge of the construct of interest for the technology discipline and which relates to the features of quality set out by the NCCA. Developing this construct must form part of the assessment strategy and is central to the skillset required for effective integration in teaching and learning as it leads to better understanding of the qualities that should be evaluated and measured.

Evidence: Teachers must recognise the role of the assessment instrument to capture and present authentic evidence of learning and capability in the technology subject discipline. There must be an awareness of how such instruments can negatively impact on teaching and learning often leading to formulaic, routinized and predictable outcomes as they align rigidly with assessment criteria reducing the process to nothing more than a box ticking exercise (Kimbell et al. 2004). With the new technology curricula operationalised through design-based activities, where there is a need to acquire relevant multi-disciplinary knowledge, demonstrate capability, evolve problem solving skills, effectively communicate, and synthesise information and conceptions, the teacher must establish how they can create the opportunity for the above to happen while also gathering evidence of the learning for the purposes of assessment.

Judgment: For a teacher to make judgements about the quality or standard of work they must have a reasonable idea or feel for the standards they intend to apply (Sadler 2005). Kimbell (2007) outlines how the assessor can begin to make sense of quality and criteria with the introduction of exemplars for comparison helping to normalise the criteria making them meaningful for the assessor. Developing the capacity to discriminate quality is a critical skill for the teacher when the requirement to deliver formative feedback to the learners is a central goal.

Generating formative feedback: To be effective feedback must provide opportunities to close the gap in relation to where the learner is judged to be and where they need to get to. Hattie (2011) presents Hattie and Temperley's model of feedback that focused on three central questions that learners need to address if feedback is to be effective: Were am I going? How am I going?, and Where to next? To navigate this space teacher feedback should help the learner to orientate themselves in terms of quality and approach and potentially guide them in relation to setting goals for future action relating to progressing their learning. Four levels of

feedback are presented by Hattie & Timperley (2007): Task or Product level, Process level, Self-regulation level and The Self. Determining which level of feedback to give is dependent on the learner and the context of the task. Developing the capacity to create formative feedback at the individual levels and understanding the context in which to action it is a key skill for the teacher.

This study presents an analysis of the formative feedback created by Technology ITE students that was intended to address the three feedback related questions presented by Hattie & Temperley 2007. It also examines, from the Technology ITE student's perspective, the process of giving and receiving feedback as part of the learning and assessment process.

Method

The participants in this study (N=59) were in their third year of a four year undergraduate concurrent technology teacher education programme. All participants had completed an eight week school placement in the previous semester where they had developed basic skills in assessment of and for learning. This study was conducted in a module of learning for the Technology ITE students and was structured around the four elements outlined above.

This study utilised a mixed methods approach collecting both qualitative and quantitative data. The approach presented three data collection points. The first is the statistical data relating to the comparative judgment (CJ) assessment activity. This data is quantitative in nature and presents the level of consensus and reliability in the decision making process by the student teacher assessors. The second and third data sets are qualitative in nature and were used to uncover the nature of participant's formative feedback and well as to document their experiences of engaging with the assessment activity. The second data set is the formative feedback comments that the student teacher judges made in relation to the work that they evaluated and judged as part of the CJ assessment. This data was analysed and mapped onto the four levels of feedback presented by Hattie and Temperley (2007). This analysis was conducted using a deductive approach, where after an initial training period using 10% of the data, one researcher and one member of academic staff working on the ITE module both coded the remaining 90% on the levels of feedback presented by Hattie and Temperley (2007). The third data set is the student teacher responses to a qualitative questionnaire that was administered to help gain insight into their experiences of the CJ assessment activity and generation of formative feedback. This data was again analysed deductively, however this was done using Braun and Clarke's (2006) six-stage framework.

The following section presents how each element was approached and delivered. This paper will then focus on the output from the fourth element of the approach.

The initial phase of the module engaged students in the co-construction and development of features of quality and level descriptors to align with the curriculum goals. Students then devised a CBA activity intended to provide the opportunity to achieve the features of quality.

The second phase involved the ITE students designing an assessment instrument that would facilitate both teaching and learning and capture evidence of learning for assessment. This was developed iteratively with support and feedback from the academic team. The students then used this instrument to complete the CBA task generating evidence of capability that they presented in portfolio format for assessment.

The third phase used comparative judgment software to provide Technology ITE students with the opportunity to holistically judge a range of portfolios from the class cohort. Through the CJ approach students were exposed to a range in quality of portfolios and were required to decide on which one was better in terms of quality. This resulted in a rank order of the work being created and the level of agreement/disagreement of the class group on the quality of the work being recorded. For more information on the CJ process please see Kimbell 2011.

The fourth and final phase occurred during the CJ session. When ITE students judged the portfolios they also generated formative comments that were intended for the learner that created the piece of work. This was recorded by the software and returned to the individual learner when the judging session was complete.

Findings

All 59 participating students completed the CJ assessment activity achieving a Cronbach alpha reliability coefficient of 0.68.

Figure 1 and Figure 2 present the level of mis-fit recorded for both judges and portfolios. This was low with only 1 judge and two portfolios outside the mis-fit criterion. For more information on mis-fit criteria see Kimbell et al. 2009.
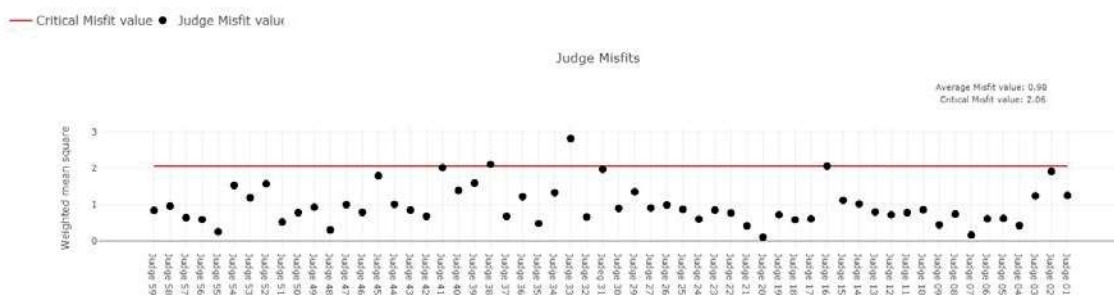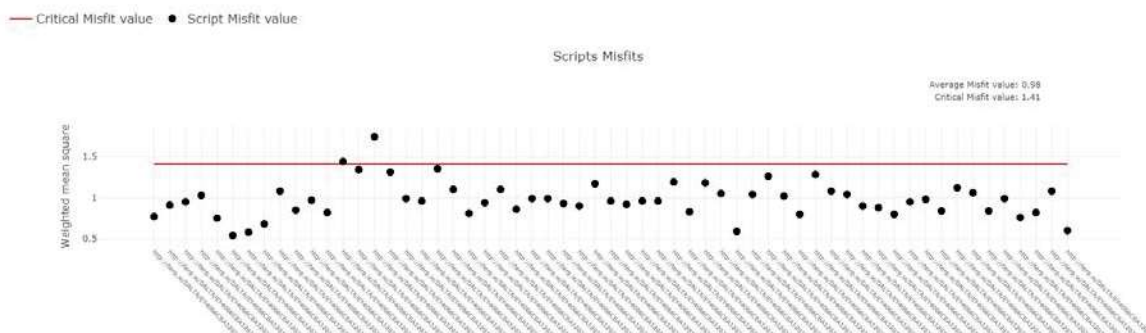

Figure 1: Judge mis-fit statistics

Figure 2: Portfolio (Script) mis-fit statistics

Student responses to the questionnaire

Table 1: Percentage of student responses per category

Question	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
Completing the judging session was a beneficial learning activity for this project	68	27	5	0	0
Receiving feedback from my peers benefited me in my learning	53	41	3	3	0
Giving feedback to my peers benefited me in my learning	54	44	2	0	0

Overall the students found the CJ process to be quite helpful. Some indicative comments from the questionnaire instrument are presented here:

Participant 16: *The comparative judgements I feel was a great way to grade my peers work. It gave a broad spectrum of the different types of CBAs and how people can interpret them. It allowed me to assess in detail different types of CBAs but was flexible in the terms that no CBAs were similar because of the no 'set criteria' for the project.*

Participant 20: *I feel this is a great tool as we more than likely would not have received this amount of feedback if it was just from one assessor. I feel this gives us more feedback and also different opinions on our CBA which is something that you want when you receiving feedback.*

Participant 28: *I really enjoyed the experience. It was very interesting to see the different approaches that my peers took. I feel the task was very valuable as it gave us an insight into what it will be like to guide our future classes through a CBA and then assess the work afterwards.*

Participant 40: *Overall, I found the experience an enlightening one. I learned more about the process of providing formative feedback which will prove extremely useful for my 4th year teaching practice and of course the rest of my career as a future educator.*

Participant 50: *Very good practice. Comparing mine I would say it was quite poor. Some of others work was exemplary and very innovative. It shows where we stand in the terms of effort put in. It was good to have the comparisons in the first section of the module so that we have good incentive to work harder, and have a chance to progress at a better standard.*

Preliminary analysis of formative feedback generated by students

Students generated 645 formative comments in relation to the work that they evaluated and judged. The comments were in paragraph form and were generally written in a format that was directed at the learner.

The comments were analysed and mapped onto the four levels of formative feedback presented by Hattie and Temperley (2007). Table 2 presents the categorisation that emerged.

Table 2: Categorisation of feedback

	Task Level	Process Level	Self-Regulation	The Self
Percentage of comments per category	51	95	8	1

Discussion & Conclusion

At the heart of this study was the use of comparative judgment (CJ) as a medium to provide ITE students with the opportunity to action their construct of quality in relation performance in a classroom based assessment activity and to provide constructive formative feedback intended to help learners close the gap between current performance and desired standards.

The CJ process was completed with a Cronbach alpha reliability coefficient of 0.68. This indicates a reasonably high level of consensus among the novice student judges in relation to the rank order of the quality of the work. Only one judge and two portfolios were outside the misfit criterion. This indicates that decisions in relation to the portfolios aligned and that most

judges made similar decisions. It should be noted that this is not indicative of validity of the rank. The validity of the rank is determined by mapping the qualities and position of the portfolios onto the features of quality set out by the NCCA. This is part of the larger study referenced earlier and is beyond the scope of this paper. The identification of outlier portfolios presents opportunity to engage in dialogue around assessment with the group of assessors to try and establish the unique factors that may have contributed to the disagreement on the work that was evaluated. This is helpful when initiating and engaging the Technology ITE students in these conversations as it is the group themselves that have generated the disagreement. Highlighting the mis-fit judge(s) is beneficial in that it provides insight on judges that seems to have misaligned with the consensus of the group providing opportunity for further intervention to address potential needs of the judge.

It is clear from the responses of the group of ITE students that they gained benefit from engaging in the CJ assessment process. Table 1 presents the significant levels of agreement that giving and receiving feedback had a positive impact on learning in the module. The initial analysis of the responses to the questionnaire, identify a number of themes that can be seen in the indicative comments presented. Students felt that it broadened their concept of quality and also provided them with a broad range of feedback from multiple judges that was helpful in them progressing their work. They also indicated that the process helped them develop a better understanding of effective feedback and that it promoted self-reflection on their own work and progress.

One of the seven principles of good feedback presented by Nicol & MacFarlane-Dick (2006) is that feedback should facilitate the development of self-regulatory skills in learners. This study has identified that that a significant body of the ITE students that generated feedback on the work did not generate feedback at the self-regulative level. This does not indicate that they are not capable of generating such feedback, but it does highlight that they did not consider this level as being important when they created their feedback for the learner. This analysis has itself identified a gap in the knowledge and skills of the ITE students which presents opportunity for an intervention that can help address this issue. This intervention was enacted following the data analysis but was not completed in time for this publication. The outcomes of this intervention will be the subject of future work in this area.

In conclusion this study indicates that the use of comparative judgment had a positive impact on the Technology ITE student's learning about assessment practice. However, analysis of the feedback generated through the CJ process has revealed that the nature of the feedback is predominantly at the task or process level thus providing the opportunity for an intervention to create more awareness of the need for feedback at the self-regulative level.

References

Black, P. and Wiliam, D. (1998). Assessment and classroom learning, *Assessment in Education: Principles, Policy & Practice,* Vol. 5, Issue 1

Braun, V. and Clarke, V. (2006). Using thematic analysis in psychology, *Qualitative Research in Psychology*, 3:2, 77-101

Department of Education and Skills (2015). Framework for Junior Cycle. Dublin, Ireland: Published by the Department of Education and Skills.

Hattie, J. (2011). Feedback in Schools. In Sutton, R., Hornsey, M.J., & Douglas, K.M. (Eds., 2011), Feedback: *The communication of praise, criticism, and advice* (pp. 265-278). Peter Lang Publishing: New York.

Hattie, J, Timperley, H (2007). The power of feedback. *Review of Educational Research, 77(1)*, 81-112.

Kimbell, R. (2007). "E-assessment in Project e-scape." *Design and Technology Education: An International Journal* **12**(2).

Kimbell, R. (2011). "The origins and underpinning principles of e-scape." *International Journal of Technology and Design Education* **Published online: Jan 2010**.

Kimbell, R., Stables, K., Wheeler, T., Miller, S., Bane, J. and Wright, R. (2004). Assessing Design Innovation. London, Department of Education and Skills.

Kimbell, R., Wheeler, T., Stables, K., Shepard, T., Pollitt, A., Martin, F., et al. (2009). E-scape portfolio assessment phase 3 report. London, TERU: Goldsmiths University of London.

Nicol, D.J. and Macfarlane-Dick, D. (2006) 'Formative Assessment and Self-Regulated Learning: A Model and Seven Principles of Good Feedback Practice', Studies in Higher Education, 31(2), 199-218.

Orsmond, P., Merry, S. and Reiling, K. (2000). "The Use of Student Derived Marking Criteria in Peer and Self-assessment." Assessment & Evaluation in Higher Education 25(1): 23 - 38.

Sadler, D. R. (1998). "Formative Assessment: revisiting the territory." Assessment in Education 5(1): 77 - 84.

Sadler, D. R. (2005). "Interpretations of criteria-based assessment and grading in higher education." Assessment & Evaluation in Higher Education 30(2): 175 - 194.

Sadler, D. R. (2009). Transforming Holistic Assessment and Grading into a Vehicle for Complex Learning. Assessment, Learning and Judgement in Higher Education. G. Joughin, Springer Science+Business Media: 45 - 63.

Yorke, M. (2003). "Formative assessment in higher education: Moves towards theory and the enhancement of pedagogic practice." Higher Education 45(4): 477 - 501.