

Using oral exams to assess psychological literacy: The final year research project interview

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The ability to reason scientifically and communicate research appropriately is central to psychological literacy. Scientific research has little value unless scientists are able to convey results and their consequences clearly to others. In this study, we outline a method of assessing the development of psychological literacy in undergraduate students. Data from three cohorts undertaking assessed interviews as part of a final year research project unit are examined. This assessment evaluated students' ability to explain the purposes and findings of their research to a lay audience, to articulate the conceptual basis and methodological background to their approach, and to reflect on their own development during the research process. Analysis of marks and feedback from the assessment suggests it provides a reliable means of evaluating skills that contribute to psychological literacy in a manner that is both educationally acceptable to students and a valid indicator of their general level of course performance.

Keywords: oral assessment; final year project; student employability.

Introduction

THIS STUDY presents and evaluates the use of oral examinations as a means of assessing undergraduate psychology student learning during their final year empirical research project. Learning how to communicate scientific findings to others in speech as well as writing, is an important part of the development of undergraduate psychologists which can contribute to their future employability. In this study, we examine the reliability and validity of this form of assessment and consider some of the educational and practical implications of using oral examinations to assess psychological literacy.

Psychology remains one of the most popular degree choices with over 100,000 applications made annually to study the subject at UK universities (Universities and Colleges Admissions Service [UCAS], 2015). The continued expansion of higher education, to which the subject area of psychology contributes, is founded on the premise that university study will reward students in the long term through the opportunity to progress into better paid, highly skilled employment

(Morrison, 2014). Growth in participation rates has placed an increased expectation on higher education institutions to supply graduates who are ready for the demands of the modern workplace and possess the professional skills that employers want (e.g. Docherty & Fernandez, 2014; Tomlinson, 2010). An additional challenge for the psychology subject area is that its graduates are known to take longer to progress into graduate careers following university and less than 20 per cent are thought to eventually become professional psychologists (e.g. Trapp et al., 2011; Van Laar & Udell, 2008). In a survey of four cohorts of psychology graduates between one and seven years post-graduation, Coulthard (2013, 2015) found that only 40 per cent of psychology students were in full-time employment 12 months after graduating increasing to 67 per cent four years after graduation. Moreover, only 60 per cent of psychology graduates reported that having a degree in psychology had been necessary for obtaining their current employment, confirming that a large proportion of psychology graduates may not explicitly make

use of subject knowledge from their degree following graduation (Lantz, 2011). It is, therefore, a growing concern within higher education to provide opportunities for students to gain work-related skills and experience during their degree (Quality Assurance Agency [QAA], 2014); and for psychology students in particular, to incorporate professional development as a core standard within undergraduate curricula (British Psychological Society [BPS], 2014).

One approach important to the development of the employment potential of psychology students is the concept of 'psychological literacy'. Psychological literacy is a broad concept that is assumed to encapsulate employability skills, global citizenship and scientific understanding (Cranney et al., 2013). By emphasising to students the scientific, evidence-based reasoning implicit within the study of psychology and its value and relevance to different professions, it is possible that the employability of graduates can be enhanced (Mair, Taylor & Hulme, 2013). Since psychological understanding might be used beneficially by graduates to help others function more effectively and ethically within the workplace or wider society, it is necessary for providers of psychology programmes to present students with opportunities to 'apply their skills and knowledge to authentic problems in a range of contexts that demonstrate the broad application of psychological theory to real life and work situations.' (Mair et al., 2013, p.6). The challenge faced by education providers then is to consider how psychological literacy might be better integrated into undergraduate degree programmes.

Several distinct but related interpretations of psychological literacy exist (e.g. Cranney et al., 2011; McGovern et al., 2010; Trapp et al., 2011) which indicate the concept to be both broad and complex (Roberts, Heritage & Gasson, 2015). Central to most definitions lie four key principles whereby the demonstration of psychological literacy should include: (i) fluency in the core knowl-

edge, concepts and practice of psychology; (ii) use of scientific inquiry and critical thinking; (iii) ethical and socially responsible actions and behaviour; and (iv) professional awareness, development and reflection.

A further pervasive theme evident in most definitions of psychological literacy and implicit within the sub-principles is an overarching requirement for effective communication. Whether presenting or reporting research findings, communicating psychological beliefs to the public, or interacting successfully with others, someone who is 'psychologically literate' should be capable of expressing relevant information in a manner appropriate to their intended audience. As Trapp et al. (2011) have indicated, central to the notion is communicating the value of psychology in everyday contexts, such that when engaging with communities, employers and the media the real-life applicability of psychological skills and knowledge can be conveyed and common misperceptions about psychology can be challenged. Since many problems within contemporary society (e.g. obesity, work-life balance, radicalisation) are behaviourally based, the more those trained in psychology are able to communicate their understanding to others, the greater the net benefit to society may potentially be (Cranney, Botwood & Morris, 2012).

Whilst there is common agreement that psychological literacy should be a primary outcome of an undergraduate psychology education both in the UK (Mair et al., 2013) and elsewhere (e.g. Cranney et al., 2012; American Psychological Association [APA], 2013), the abstract and multi-dimensional nature of the construct presents a barrier to its integration into curricula with some authors suggesting there is an urgent need to more clearly specify an operational definition of the concept, its boundaries and how it can be measured in order to improve its real-world utility (Roberts et al., 2015). As Halpern and Butler (2011) argue, simply calling for students to be educated about psychological literacy may prove hollow unless an effective means of assessing how

well students develop this collection of attributes is developed. Assessments that evaluate psychological literacy are, therefore, required.

Some attempts at examining psychological literacy in undergraduates have explored its links to more generic graduate skills and abilities. Morris et al. (2013) evaluated a cross-section of undergraduates, finding that whilst the importance of psychological literacy was rated highly by students, the extent to which students felt they had developed these skills during their studies was rated only moderately. Using psychometric test responses from over 500 students in an Australian university, Roberts et al. (2015) concluded that psychological literacy could best be characterised as consisting of three primary components: reflective processes, general academic attributes, and the perception of psychology as a helping profession, although scores on these dimensions did not correlate strongly with students' self-rated assessment of nine individual characteristics derived from the definition of psychological literacy proposed by McGovern et al. (2010). The authors conclude that further objective means of identifying psychological literacy are required.

Potential activities that might provide a means of embedding psychological literacy within undergraduate curricula have been considered by some authors. For example, Mair et al. (2013) identify several concepts common to undergraduate psychology syllabuses (e.g. social influence, mental health, resilience) where students might be able to use their knowledge to benefit others, whilst Taylor and Mair (2013) suggest three different ways of encouraging students to reflect on social psychological aspects of their learning including tasks exploring environmental behaviour, teamwork-based activities and mock interviews. Trapp et al. (2011) proposed setting applied problems within businesses or the local community such that employers and students are able to see how taught materials have real-world relevance. The authors also recommend that under-

graduate curricula should require a diverse range of assessment practices so that all skills defined in the psychology benchmark statement (QAA, 2010) are evaluated. Moreover, to improve the employability of graduates, students should be encouraged to *communicate* the skills they develop during their degree to others, rather than assuming the abilities that psychology graduates possess will be publically recognised. It follows that the development of assessments that promote an evaluation of the multi-dimensional components of psychological literacy and also allow students to practice the communication and demonstration of these attributes will be key to successfully embedding and enhancing its inclusion within undergraduate curricula.

Several authors have suggested scenario-based approaches to assessment whereby students are asked to adaptively apply psychological concepts to explain events or propose solutions. Such activities might include evaluating newspaper editorials or advertisement claims (e.g. Halpern & Butler, 2011), writing letters intended for a non-psychological audience outlining the evidence for and against a particular course of action (e.g. Cranney et al., 2013) or case study analyses which require students to implement a strategy or propose an intervention (e.g. McGovern et al., 2010). A common issue with situated learning experiences, however, is that they can be difficult for students to accomplish in a limited time frame without over trivialising the nature of the task. This makes the standardisation of such tasks for the purpose of assessment challenging given the ambiguity which exists in the potential approaches to each topic and the variable outcomes that may be obtained. Cranney et al. (2013) advocate a portfolio-based approach, where students are required to build up evidence and reflect on their skills development across several modules on their degree, or the use of 'capstone' modules which require students to apply the knowledge and skills learned from earlier in their studies. The nature of capstone units,

however, is known to vary widely across institutions and may be taken to include internships, research projects, outreach experiences or a mixture of these options (Weimer, 2012). Therefore, the need exists for more consistent methods of assessing psychological literacy to be developed which might readily fit into undergraduate UK degree programmes and which are relevant to the diverse range of attributes which contribute to the concept.

One possibility for the assessment of psychological literacy which also satisfies the related goal of contributing to the development of employability skills in students is the use of oral (*viva voce*) examinations. Using oral examinations to assess student competencies is well established in many subject areas including medicine (e.g. Evans, Ingersoll & Smith, 1966) and law (e.g. Butler & Wiseman, 1993). *Viva voce* examinations also have a long tradition in the assessment of doctoral research and have been shown to increase self-perceptions of academic competence in PhD students (Jackson & Tinkler, 2001).

The pedagogic benefits of interview-based oral examinations have been well researched. In most forms of the assessment, a set of questions are developed that cover core aspects of domain knowledge and skills that students are expected to demonstrate. Both the students' depth of comprehension of this content and their ability to communicate this effectively can, therefore, be evaluated (Joughin, 1998). The approach allows examiners to explore topics in direct conversation with students such that knowledge can be further interrogated and questions can be clarified, maximising opportunities for students to demonstrate their full potential. Students are forced to rely on their own words and understanding strengthening the academic integrity of the assessment and reducing the potential for plagiarism. Oral assessment is also thought to improve depth of learning with some evidence suggesting that students prepare more thoroughly for this form of assessment to help improve con-

fidence in their ability to deal with questions and to avoid feeling foolish in front of the examiner (Butler & Wiseman, 1993; Joughin, 2003). The presence of examiner panels with whom the student interacts directly, whilst providing motivation, can also lead to stress in students and may impede their ability to perform to their best, although research evidence that might confirm a direct link between anxiety levels and students' oral performance in *viva voce* examinations appears inconclusive (Arndt, Guly & McManus, 1986). A further factor to consider in the use of oral examinations is the unavoidable lack of anonymity for the student, which may contravene assessment protocols in some universities. As a consequence, assessments may be influenced by prior knowledge of the student or be subject to other sources of bias similar to those found in selection interviews (e.g. Arvey, 1979). To protect against this, safeguards are required to standardise the interview process, assessment criteria used, and allocation of examiners to students.

Oral examinations have been used successfully to evaluate business communication skills in human resource undergraduates (Burke-Smalley, 2014), assess pharmaceutical students' confidence in care settings (Sibbald, 1998) and evaluate understanding of customer service relationships in marketing undergraduates (Pearce & Lee, 2009). However, evidence regarding the extent to which oral assessments are indicative of a student's overall level of ability appears mixed. Oakley and Hencken (2005) used 30-minute assessed interviews with undergraduate sports science students, finding performance on the assessment where six interview questions were drawn at random correlated positively with end-of-year exam scores. Torke et al. (2010) compared the performance of medical students on a written theory examination with their performance during a 10- to 15-minute *viva voce* assessment that contributed to the same module. Students were given a 'viva card' of preliminary interview topics whilst waiting their turn to take the

examination in an attempt to allow students to mentally prepare, although examiners deviated to other topics later during the examination. The authors found that whilst the ratio of students passing and failing each assessment did not vary, overall scores on the two assessments did not correlate well, concluding that whilst viva voce examinations may be suitable to differentiate between top performing students where more in-depth questions can be posed, they should not be used in isolation to determine whether a student passes or fails a subject.

An old but comprehensive study conducted by Evans et al. (1966) similarly found no correlation between 20-minute oral examinations and an objective written examination taken two days later by students on the same module. In this study, medical students were interviewed twice by different pairs of assessors. Good agreement ($r > 0.7$) was found between junior and senior physicians within each interview team, and between different teams of assessors. Oral examination grades also correlated positively with the total amount of time each student spent talking and the number of words spoken during the interview which the authors attributed to more fluent speakers being better able to organise their thoughts. However, no relationship was found between spoken interview performance and grading of the same interviews from verbatim written transcripts, when marked independently two months later; described by the authors as 'oral parallax' (p.654) given the shift in evaluation of the same information when considered via a different medium. More recently, Huxham, Campbell and Westwood (2012) also found undergraduate biology students scored significantly higher when assessed by oral examination compared to students who answered the same questions by written examination, which the authors suggest may be related to an increased sense of professionalism in the oral context. This pattern held for questions that required scientific analysis and those which asked students to reflect on skills development.

The existing literature shows that oral examinations are used across different academic disciplines to improve student skills where the assessment format has clear vocational relevance, although evidence regarding the predictive validity of oral examinations as an indicator of general course performance is less clear cut, and may be dependent on the interview methodology used. In addition, relatively little is known about the utility of oral examinations on undergraduate courses within the psychology subject area, despite the obvious importance of oral communication skills within the profession. The use of interviews to assess learning from undergraduate research projects not only fits well with the core aspects of the psychology subject benchmark (QAA, 2010) but also encourages students to engage in social conversation about the validity of the scientific conclusions, a central component of psychological literacy (Cranney et al., 2013). Whilst most scientists consider the reporting and visibility of their research in broadcast and print media to be important (Peters, 2013) this process can often lead to the misrepresentation of findings through over-simplification, exaggeration or omission of critical detail, such that some researchers feel ill-prepared in the art of public communication (Kaye et al., 2011; Wien 2014). Misconceptions about psychology, outside of the scientific discipline, are common in everyday society and it is important for psychologists to help develop public understanding by challenging incorrect assumptions. It follows that engaging undergraduates with opportunities to explain research findings in a manner that is appropriate to different audiences should be a fundamental goal of undergraduate programmes in psychology. The ability to present scientific arguments and communicate findings accurately will be key to improving the scientific literacy of the general public, and may help counter public scepticism about psychology and its ability to address significant issues within society. As Crowe (2012, p.58) points out, 'Psychology

leaders, educators, and graduates should be capable of “giving psychology away” to receptive members of the public, many of whom will have influence on their immediate and wider communities.’

The current study, therefore, seeks to investigate the use and effectiveness of oral examinations as a means of assessing the psychological literacy of undergraduate students by examining their application to a substantial core research component of all BPS accredited courses, the final year research project. The specific aims of the study, were:

- To examine the validity of assessed oral project interviews to predict students’ performance elsewhere on their psychology degree.
- To examine the reliability of oral project interviews as an assessment method where different teams of interviewers are used.
- To examine students’ views on the acceptability and educational impact of oral project interviews.
- To consider the impact of prior mock interviews on students’ preparedness and perceptions of assessed interviews.

Method

Sample

Participants were 454 final year undergraduate students enrolled on two BPS accredited undergraduate psychology programmes at one university within the UK. As part of these degree programmes, all students complete a compulsory 40-credit empirical research project unit, equivalent to 33 per cent of the total marks available during their final year.

Data from three cohorts of students are examined of whom 443 attended an assessed project interview as part of the final year project unit. The remaining 11 students did not complete the assessment on grounds of reasonable adjustment, extenuating circumstances on the day of the interview or non-completion of the academic year. The final data sample, therefore, comprised those

graduating in 2013 ($N=163$), 2014 ($N=155$) and 2015 ($N=125$), of whom 72 (16 per cent) were male and 371 (84 per cent) were female.

Project interview design and preparation

The project interview was designed to meet three key objectives. Firstly, to allow students to demonstrate their ability to explain aspects of their final year project as if to an interview panel unfamiliar with their work and with only a general awareness of the discipline. Secondly, to give students an opportunity to expand on the written account of their project with respect to the process of conducting research and identifying learning from this culminating aspect of their degree. Thirdly, to assess the extent to which students’ interview performance was consistent with the standard of scientific reasoning and communication skills expected of a graduate of psychology.

Project interviews lasted for 15 minutes. All interviews were timed so as not to extend beyond this limit and audio recorded for the purposes of later mark verification. Students were advised that whilst interviewers would be friendly and try to place them at ease, the conduct of the interview was a formal summative assessment and they should respond accordingly. Interviews started and finished at a designated time, such that late arrivals would have time deducted from their interview.

The interview assessment contributed 10 per cent of the student’s overall mark for the project unit, with the remaining 90 per cent being derived from a written project report of up to 8000 words. This weighting was chosen to strike a balance between limiting student anxiety arising from the credit value of the interview whilst still providing students with an opportunity to improve upon the overall degree class of their project. The assessment regulations of our institution also meant that a student could not successfully pass the project unit without attempting all assessments on the unit. Interviews were held approximately seven weeks after students had completed and submitted

their written project reports. However, to limit the diverse effects that a good or bad report mark may have on student anxiety or motivation during the interview, the decision was made not to release report marks to students prior to interview.

Students were informed prior to the interviews that they should address their answers as if to an intelligent lay person or professional who was not familiar with the specifics of their study. Project supervisors were not included on interview panels, such that interviewers were naive to the nature of each student project. Students were also informed that they could bring a copy of their project report to the interview if they wished, but that this was not necessary and not advised. It was not the purpose of the interview to examine the detailed information in their work, but their ability to explain their work that was of primary importance. For this reason, interviewers read only the abstract of the student's work prior to each interview, to familiarise themselves with the basic nature of the study conducted.

As Oakley and Hencken (2005) recommend, student anxiety can be reduced by making students more familiar with the structure and style of the assessment beforehand. To help students prepare for the interview, online tutorial materials were developed consisting of a guide to the interview process, three videos of full interviews conducted with ex-students showing good and bad answers to different questions, a pool of practice interview questions, and an online forum to which students could post questions. Additionally, a special project interview workshop was held six weeks prior to the assessment period where marking criteria were discussed and any further queries could be addressed. Students were also given the opportunity to practice responding to interview questions via a mock interview with their project supervisor after completion of their project report. Supervisors were asked to make use of the practice questions available within the online tutorial for this purpose.

Operational procedures

Interviews were held over a three-day period two weeks prior to the students' end-of-year examinations. All interviews were held in the same location comprising six adjacent research rooms within the psychology department, with students first being asked to report to a central waiting area from where they were collected. To help standardise practice between different interviewers, all interviewers attended a group training session covering expected interview questioning and marking protocol prior to the main interviews.

Each student was assessed by a panel of two academic staff. The first interviewer acted as the lead interviewer, covering set themes from a pre-defined list of compulsory questions such that all candidates were asked the same core questions. The second interviewer acted as the primary marker, making notes about the candidate's answers and scoring their responses in each question category as the interview progressed. If time permitted and where relevant to the candidate's earlier responses, the second interviewer would also ask follow-up questions selected from a supplementary list of questions, used by all interview teams. Interviewers were permitted to be encouraging and supportive by repeating or rephrasing questions if required, but were not permitted to assist students beyond this.

Depending on cohort size, five or six interview teams were used to assess all students, such that each team undertook between 25 to 30 interviews over a three-day period. First and second interviewers were systematically rotated over the three-day assessment period such that each first interviewer marked with each second interviewer. The reliability of oral assessments has been shown to increase when multiple examiners are used (Wass et al., 2003). This arises since sharing perceptions helps interviewers become more aware of the inferences they make, information is less likely to be missed, and bias in decision-making is reduced since interviewers provide checks on each other (Campion, Palmer & Campion, 1997).

Students were allocated to scheduled interview slots which exceeded the expected duration of the interview so that the interview procedure could be explained to the student, to allow for overrun, and to provide time for the interviewers to agree marks and complete a feedback sheet with comments for the student, before starting their next interview. Assessment and feedback was therefore completed instantaneously, with both project report and interview results being made available to all students two working days following the date of the last interview sessions.

Interview questions and marking criteria

Students were asked questions structured around five main themes. The five themes required students to: (i) give a concise non-specialist explanation of their project; (ii) explain the rationale for their study; (iii) demonstrate an understanding of methodological issues concerning their study; (iv) provide an interpretation of their findings; and (v) reflect on what they had learned from the project process. Themes were chosen to reflect the nature of questions that a recent graduate might reasonably be expected to answer about their research project when attending a selection interview following university.

Each theme consisted of at least two compulsory questions asked by the lead interviewer and a further three supplementary questions that could be asked by the second interviewer. Using the same question pool and asking questions in the same order whilst limiting requests for elaboration is known to improve the consistency of the interview process (Campion et al., 1997). However, some variety in follow-up questions was felt desirable to help reduce the possibility of questions being passed between students tested on different days (Oakley & Hencken, 2005). Interviewers attempted to devote around the same amount of time to each theme, with the second interviewer monitoring the elapsed time and moving the discussion on, as required.

To facilitate the opening of the interview, the first two questions were disclosed to students before the assessment. These were: 'How would you explain your project to a non-psychologist?' and 'How did the idea for your project emerge?' Student responses to each of the five interview themes were graded by the second interviewer on a discontinuous percentage scale, with a mark being awarded for each theme. An overall mark was then calculated by the second interviewer, determined as the mean score of these five themes plus an additional mark based on their global assessment of the candidate's performance during the interview.

The lead interviewer, blind to the marks awarded by the second interviewer, would also independently provide an overall mark for the interview. A final interview mark was then agreed following discussion between the two interviewers, taking into consideration the first and second interviewer marks and interview marking criteria. Marking criteria in the first class category for each interview theme plus the global assessment of the candidate are shown in Table 1.

Results

Concurrent validity

To examine project interviews in the context of students' performance elsewhere on their degree, agreed interview marks were compared with project report marks, final year course averages and students' overall degree classification upon graduation. Paired-samples *t*-tests were used to examine whether interview and project report grades differed for each student. When all cohorts were aggregated, no significant difference was found between interview marks ($M=67.2\%$; $SD=8.9\%$) and project report marks ($M=66.6\%$; $SD=7.1\%$), $t(437\ df)=1.27$, $p=.21$ n.s., $d=0.07$. This was also true when interview and project marks were examined separately for each cohort (Table 2).

Significant positive correlations, with a moderate effect size were found between project interview and project report marks (r_{ip}). In addition, strong positive correlations

Table 1: Marking criteria for the final year project interview (five main interview themes plus global candidate assessment).

Interview theme	Marking criteria (first-class response category)
1. Explanation of topic	<p>The student was able to summarise the study and its findings in a succinct and sophisticated manner. Critical analysis of existing literature was excellently used to provide a convincing rationale for the study and the methods. The rationale for the study was clearly placed within an appropriate context. The responses revealed a strong understanding of the significance of the research.</p>
2. Choice of topic	<p>The student clearly explained the development of the study idea (e.g. from previous research) in a highly sophisticated, concise and logical manner. The responses revealed a strong intellectual interest in theory and scientific ideas.</p>
3. Understanding of methodological issues	<p>All relevant information concerning the method and procedures (including identifying issues) were expressed in a simple but sophisticated way, without superfluous detail or repetition of information. The information was logically structured and easy to understand, and the choice of design decisions with respect to particular methods, analyses or approaches are readily understood by the student. There may have been evidence of advanced methodological considerations (e.g. use of power analysis to determine sample size). The student is able to articulate and evaluate the strengths and weaknesses of the chosen methodology and analyses which are accurately interpreted and expressed using recognised language.</p>
4. Depth of interpretation and scientific discussion	<p>The student is able to provide a convincing description and evaluation of their major findings with respect to its practical/theoretical implications, as well as showing an awareness of the potential broader applications of their work. The origins and scientific contribution are clearly placed and understood. The responses given are coherently linked to the issues raised by the project's rationale. The thoughts expressed do not include undue or unsubstantiated claims or speculations. Any criticisms expressed or suggestions for further work are genuine and insightful and naturally emerge from the findings of the study. The response provides a sophisticated analysis of their findings – overall, they demonstrate an excellent understanding of the strengths and weaknesses of their research.</p>
5. Learning derived from study	<p>Responses indicate that the student fully understands key challenges faced within the research process. The student critically evaluates different stages of their study and comes up with convincing, elegant, and/or original solutions on how to improve it. Responses show that the student is able to reflect on their plans and expectations prior to the study and the extent to which these were met. The student is able to illustrate their skills development during the conduct of project using thoughtful examples (e.g. with respect to employability or research skills, etc.). S/he also provides genuine ideas for improvements or future studies that build on their work and are able to explain convincingly why such future studies would be important to conduct. Convincing statements were provided reflecting on the broader application of the subject knowledge.</p>

Table 1: Continued.

6. Global assessment of candidate	<p>The student demonstrates excellent communication skills, a well informed scientific dialogue, and an overall level of competence expected of a graduate. Responses to the questions are clear and well organised with little redundancy, and contained an appropriate balance of description, critical analysis and evaluation. The purpose of their research was clear and their explanations show a clear logical structure with strong attention to detail in every aspect of the interview. Responses consistently were focused on the questions posed. The relative length of the answers provided was appropriate. Overall, the student made a positive impression on the interviewers, which would convince them (in an employment context) to strongly support an application from the candidate towards a graduate position or further academic study.</p>
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+ Grades for each interview theme were awarded on a discontinuous percentage scale. To simplify grading, one of three numerical values only could be assigned to an answer in each degree class band, with the exception of the first class band where four numerical values were used. The numerical values used for grading were: 0%, 20%, 35%, 42%, 45%, 48%, 52%, 55%, 58%, 62%, 65%, 68%, 74%, 79%, 85%, 95%.

Table 2: Comparison of project interview marks, with project report marks and final year average marks for three student cohorts.

Year of Graduation	N	Project Interview		Project Report	Interview vs. Report (paired-samples <i>t</i>)	Validity Coefficient	
		Mean (SD)	Mean (SD)			<i>r_{ip}</i>	<i>r_{iv}</i>
2013	163	20% – 95%	65.8% (8.6%)	66.5% (6.9%)	-0.96 n.s.	.38**	.58**
2014	155	55% – 95%	68.3% (8.1%)	67.1% (6.6%)	1.70 n.s.	.40**	.50**
2015	125	42% – 95%	67.7% (9.8%)	66.3% (8.1%)	1.53 n.s.	.37**	.49**

Notes:

r_{ip} Pearson correlation between project interview (%) and project report mark (%)

r_{iv} Pearson correlation between project interview (%) with final year course average (%)

***p* < .001

were found between interview marks and final year course averages (r_{iy}). These data suggest that students who fared better during the project interview also tended to submit better quality project reports, with the absolute difference in grades achieved by each student being small. Interestingly, interview marks were found to be a better predictor of overall course performance than project report performance, with the value of r_{iy} (.52) being significantly larger than value of r_{ip} (.38) when calculated across all three cohorts ($Z=2.35$, $p=.018$, 2-tailed).

Since degree classifications are not solely derived from final year average marks within our institution, further analysis was conducted to examine the association between interview performance and final degree class. For the three cohorts combined, 127 students (29 per cent) achieved a first class interview grade, 229 (53 per cent) achieved an upper second class interview grade, 72 (17 per cent) achieved a lower second class interview grade and four (one per cent) were awarded third class or fail grades. Cross tabulation of interview class against final degree class showed a significant association $\chi^2(9, N=431)=90.32$, $p<.001$, Cramer's $V=.264$, such that for 59 per cent of all students their interview class correctly predicted their final degree class.

Reliability

Interviewer reliability was considered by examining levels of agreement between first and second interviewers, as well as grading differences between different interview teams.

A significant difference was found in marks awarded by the first interviewer ($M=66.5\%$; $SD=8.3\%$) and second interviewer ($M=67.1\%$; $SD=8.9\%$), $t(391\ df)=3.78$, $p<.001$, although the effect size was small ($d=0.06$). On average, second interviewers graded half of one per cent mark higher than first interviewers. When data for each cohort were examined separately, differences between first and second interviewers were found in two cohorts only (Table 3).

Examination of the relationship between marks awarded by first and second interviewers showed strong positive correlations ($r\geq.94$) within each cohort group, suggesting pairs of interviewers tended to exhibit similar grading patterns across different candidates (i.e. good inter-rater reliability). The overall consistency in marks awarded within the same interview team, therefore, appears more influential than the absolute differences in marks that occurred between first and second interviewers.

A further threat to reliability is possible bias between interview teams, whereby some marker pairings may grade more harshly than others. Agreed interview marks were therefore examined across different marker pairings using independent groups analysis of variance (ANOVA). No significant differences in agreed marks were found between different interview teams for any of the three cohorts (Table 4). The difference between the most lenient and most severe marker pairings ranged from three to five per cent in each cohort with the mean marks for all teams falling within approximately 0.25 standard deviations of the overall cohort mean. The observed effect size between teams in each cohort were, therefore, small ($\eta^2\ p\leq 0.04$).

Since pairs of markers did not interview all students within each cohort, grading differences between interview teams will also be dependent on ability variations in the subset of students they assessed. To examine differences in the grades awarded by different interview teams whilst controlling for the effect of project quality, analysis of covariance was used on the data from each cohort, with the final year project report mark as a covariate (Table 4). Project report marks were found to be a significant covariate ($p<.001$) of interview marks in the three ANCOVA analyses conducted. However, no significant difference in agreed interview marks between different marking teams was found for 2013 graduates $F(5,150)=1.27$, $p=.281$ n.s., 2014 graduates $F(5,145)=0.59$, $p=.706$ n.s. or 2015 graduates $F(4,119)=0.29$, $p=.883$ n.s, even when the effect of project

Table 3: Comparison of marking agreement and inter-rater reliability between first and second interviewers.

Year of Graduation	Project Interview		First vs. Second Interviewers (paired-samples <i>t</i>)	Effect Size (<i>d</i>)	Inter-rater reliability (<i>r</i>)
	First Interviewer Mean (SD) %	Second Interviewer Mean (SD) %			
2013	65.3% (7.8%)	65.9% (8.5%)	-2.69*	0.07	.94**
2014	67.3% (7.5%)	68.2% (8.1%)	-3.87**	0.10	.95**
2015	67.4% (9.8%)	67.5% (10.6%)	-0.11 n.s.	0.00	.95**

p*<.01, *p*<.001

Table 4: Comparison of agreed interview grade between primary markers (second interviewers).

Year of Graduation	Number of marking teams	Agreed Interview Marks <i>M</i> (<i>SD</i>)			Statistical Comparison of Marker Pairings		
		Lowest marker pairing	Highest marker pairing	All markers	<i>df</i>	ANOVA <i>F</i>	Effect size η^2_p
2013	6	64.6% (9.0%)	67.5% (6.0%)	65.8% (8.6%)	(5,157)	0.42 n.s.	0.013
2014	6	65.4% (6.9%)	70.3% (10.2%)	68.3% (8.1%)	(5,149)	1.30 n.s.	0.042
2015	5	65.6% (12.1%)	69.1% (9.0%)	67.7% (10.0%)	(4,120)	0.44 n.s.	0.014

report mark was taken into account. Overall, these data suggest no systematic differences occurred in the judgements made by different marking teams in the evaluation of project interview performance.

Threats to reliability might also arise through contrast errors, if markers become more lenient or severe over time through judgements being influenced by impressions of earlier candidates, or if question sets are compromised following the initial interviews. To examine marking variation over time, marks awarded to students interviewed on different days were compared using independent groups ANOVA (Table 5).

A slight trend for mark inflation of between one to three per cent was observed from day one to day three of the interviewing schedule, but this was not statistically significant in any of the three cohorts. In addition, when project report mark was introduced as a covariate in the analyses to compensate for differences in project quality, no significant differences were observed across the three testing days, with small effect sizes being observed ($\eta^2 p < 0.04$). From this analysis, there is, therefore, no evidence to suggest that assessment standards changed over time or that students gained an advantage by being tested on later days.

Student feedback on project interviews

The educational impact of the interviews was evaluated through student satisfaction ratings gathered as part of course feedback for the 2013 and 2014 cohorts. Students were assured that their responses would be treated confidentially and would only be used to inform the future development of the interview assessment. Feedback suggested 94 per cent of students had accessed the online materials regarding the project interview and 81 per cent had discussed the interview with their supervisor. Most students had also taken the opportunity to practice being interviewed, with 68 per cent reporting they had arranged a mock interview with their project supervisor, of whom 93 per cent reported finding this helpful.

Acceptance of the interview format was also high, with 97 per cent of students agreeing that the assessments used were appropriate; the perceived appropriateness of assessment also correlated positively ($r=.55$) with students' overall satisfaction with the project unit.

Since course satisfaction data are gathered anonymously within our institution, it was not possible to relate the feedback shown in Table 6 to student performance during interviews. A further voluntary survey was therefore undertaken with the 2015 cohort after graduation in which more specific feedback was sought (Table 7). Whilst the response rate was low, no significant difference was found in interview marks between students who did ($M=71.9\%$, $SD=11.3\%$) and did not ($M=67.1\%$, $SD=9.7\%$) respond to the survey ($t(123)=1.78$, n.s.) suggesting differences in interview outcomes were not a source of non-response bias. Of those replying, 60 per cent reported taking part in the interview had been a positive experience. Moreover, 80 per cent reported that they now felt more confident being able to communicate psychological findings to others whilst over 60 per cent felt taking part in the assessment had benefited their interview skills or would help them when applying for jobs in the future.

Of those who took part in a mock interview, 80 per cent agreed this had helped them prepare for the real assessment. Comparison of actual interview marks between those who did ($M=73.2\%$, $SD=12.1\%$) and did not ($M=67.0\%$, $SD=6.2\%$) report having a mock interview suggested a trend for mock interviewees to achieve higher marks although this was not statistically significant ($t(16)=0.86$, $p=.41$ n.s.). Those who obtained higher interview grades were also more likely to rate the interview experience as positive ($r=.67$).

Examination of open-text comments about the interview revealed the most frequently expressed opinions were that the assessment weighting (10 per cent of the

Table 5: Comparison of agreed interview grades for students assessed on different days of the three-day interview period.

Year of Graduation	Agreed Interview Marks <i>M (SD) N</i>			Effect of Day of Interview		
	Day 1	Day 2	Day 3	ANOVA <i>(df) F, p</i>	ANCOVA + <i>(df) F, p</i>	Effect Size η^2_p
2013	65.7% (8.7%) N=56	66.4% (7.1%) N=52	67.6% (7.3%) N=45	(2, 160) 0.73, n.s.	(2, 157) 0.94, n.s.	0.010
2014	66.9% (5.7%) N=55	67.6% (8.7%) N=54	70.7% (9.4%) N=46	(2, 152) 2.87, n.s.	(2, 148) 1.73, n.s.	0.036
2015	67.2% (8.2%) N=45	67.5% (9.9%) N=43	68.5% (11.9%) N=37	(2, 122) 0.18, n.s.	(2, 121) 0.12, n.s.	0.003

+ using project report mark as a covariate.

Table 6: Project interview student feedback (2013 and 2014 cohorts).

Question	Mean Rating (SD) †	Students agreeing with statement (%)	Correlation with overall unit satisfaction (r)
1. The information I received during lectures, about the project interview, was helpful.	4.09 (0.68)	83.4%	.35**
2. The information I received in the project handbook, about the project interview, was helpful.	4.31 (0.64)	93.1%	.31**
3. The online information for the project interview was helpful.	4.37 (0.68)	94.5%	.28**
4. My supervisor offered me support and guidance for my project interview.	4.64 (0.61)	95.6%	.44**
5. My mock project interview with my supervisor was helpful.	4.58 (0.74)	93.3%	.38**
6. The assessments for the project unit were appropriate.	4.39 (0.56)	97.2%	.55**

N=236, response rate=74%.

† Responses made on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

* $p < .05$ ** $p < .01$

Table 7: Project interview student feedback (2015 cohort only).

Question	Mean Rating (SD) †	Students agreeing with statement (%)	Correlation with overall unit satisfaction (r)
1. I feel taking part in the project interview has benefited my interview skills.	3.53 (1.11)	66.7%	.61**
2. I now feel more confident in being able to communicate (my) psychological findings to others.	3.80 (0.93)	80.0%	.53**
3. Having done a project interview will help me when applying for jobs or courses in the future.	3.57 (1.00)	63.3%	.37
4. On the whole, I found completing the project interview to be a positive experience.	3.53 (1.11)	60.0%	.67**
5. Taking part in a mock interview with my supervisor helped prepare me for the real interview.	4.20 (1.04)	80.0%	.22

N=30, response rate=24%.

† Responses made on a five-point Likert scale from 1 (strongly disagree) to 5 (strongly agree).

* $p < .05$ ** $p < .01$

overall project mark) did not reflect the effort students had placed into preparing and that the interview weighting was disproportionate to the stress created by the assessment. Whilst this could be taken as suggesting a preference for increasing the assessment weighting, some students commented that the assessment format may have disadvantaged shy and nervous students, although none directly reported feeling that nerves had affected their own performance. Others would have preferred the interview to have been closer to their project report hand-in date. Planning is, therefore, required with interview assessments to ensure the timing and weighting of the assessment reflects student effort without creating undue anxiety.

Discussion

The ability to communicate research findings and scientific opinions to others in an accurate and professional manner is central to developing psychological literacy and an important employability skill for psychology graduates. The present study suggests oral interviews can be used as a reliable means of assessing the development of such attributes in undergraduate psychologists in a manner that is both educationally acceptable to students and a valid indicator of their general level of performance.

For approximately six out of every 10 students, project interview classifications were consistent with their overall degree classifications. Whilst on the surface this may not seem remarkable, it should be noted that the net contribution of the interview to degree classifications was small, equivalent to three per cent of the final year. Despite this, interview marks were found to correlate more strongly with students' final year course average than they did with project report marks. This may suggest that the interview assessment is more predictive of the broad range of skills students develop across their degree and, therefore, highly relevant to their learning as an undergraduate.

The range of topics considered during the interview were selected to cover each student's ability to explain in simple terms the purposes and findings of a research study, demonstrate they understood the reasoning behind their work, and to show critical awareness of the limits of their approach such that its contribution could be appropriately framed. These were in addition to asking students to reflect on their own development during the research process and evaluating their general ability to communicate effectively in a professional setting. The assessment, therefore, provides a relatively efficient means by which student learning across several of the core skills within the QAA (2010) psychology benchmark and emphasised within recent definitions of psychological literacy (e.g. Cranney et al., 2011; Mair et al., 2013) can be evaluated.

Final year research projects are a culminating feature of undergraduate degree programmes in psychology through which many graduate attributes are practiced. However, students do not always see the connection between what they have achieved through their project and their own employability (Healey et al., 2013). The addition of a corresponding assessment which specifically encourages students to verbalise the personal skills they have developed through their project can only benefit students in future recruitment and selection contexts. Oral assessments may also help students to prepare for the forms of communication they will encounter in their future careers, more so than other forms of undergraduate assessment (Joughin, 2003). As Huxham et al. (2012) suggest, oral assessments act as a powerful tool in helping students establish a professional identity which adds to the perceived authenticity of this form of assessment. This view is consistent with the positive evaluation of the appropriateness and perceived future benefit of the project interviews reported by students in the present study.

A common view expressed within the literature is that oral presentations are resource intensive and time-consuming to

conduct, which can be particularly problematic with large class sizes (e.g. Butler & Wiseman, 1993; Joughin, 2003). We found that five or six teams of markers working together in a rotated pattern of pairings could readily accommodate cohort sizes of up to 180 students over a three-day period (10 to 12 interviews per team per day). Moreover, since the interview duration was relatively short, time could be built into the schedule for mark co-ordination and the production of written feedback to students, meaning that outcomes could be communicated to students very quickly following the assessment. We estimate that the total person-hours for all markers would, therefore, not far exceed the time required by one person to mark written assessments, marked at the rate of one assessment per-hour in a similar sized cohort. Beyond practical considerations of staff workload, the three-day interviewing period as an event in its own right, was found to add value to the sense of community within our department with positive reactions being reported by both students and staff each year. Whilst other efficiency measures are possible to reduce time costs, such as using single examiners rather than interview panels (Butler & Wiseman, 1993) or conducting interviews with multiple students present (Oakley & Hencken, 2005) these were not felt to be appropriate in this context, to maintain the perceived fairness of the assessment, as well as the confidentiality of each candidate.

Within our interview structure, supplementary questions were used to probe the boundaries of students' knowledge. Consistent with Butler and Wiseman (1993), this appeared to be effective for gauging depth of understanding and for distinguishing between competent and exceptional candidates. Additional question probes were also particularly important in cases where students responded briefly to questions and helped avoid progressing too quickly through key aspects of the interview. In such cases, second interviewers were able to

monitor the time spent on each interview theme to ensure all students had approximately equivalent periods addressing topics, and more anxious students who might answer quickly were not disadvantaged.

Some research on *viva voce* examinations suggests questions often address the recall of basic information rather requiring students to demonstrate depth of understanding (e.g. Davis & Karunathilake, 2005; Evans et al., 1966). Examiners, therefore, mistake confidence and articulate expression in candidates for enhanced subject knowledge, such that eloquent but weaker students may receive better ratings than their performance warrants (Thomas et al., 1993; Torke et al., 2010). In the present study, the marking criteria used specifically required examiners to separate out their assessment of the style and subject content of answers provided by candidates in an attempt to mitigate against such effects. Comparison of the marking within interview teams as well as between different teams suggested a consistent pattern of grading was followed throughout the project interviews. In addition, no evidence was found to suggest that students' interview performance was evaluated leniently, or was inconsistent with their performance elsewhere on their degree, which might be expected if confidence rather than knowledge was being rewarded. As McAdams and Robertson (2012) have also pointed out, the use of oral assessments in an academic programme can be justified where the mastery of professional skills such as using evidence to make a verbal case, presenting a persuasive argument, and adapting communication styles to suit a particular audience are required within the field. It can, therefore, be concluded that the use of assessed project interviews provides a promising and reasonable means by which psychological literacy, and more specifically, the ability to communicate scientific thinking and findings in a clear and appropriate manner may be evaluated on undergraduate programmes.

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