Examiners' Report
Principal Examiner Feedback

Summer 2018

Pearson Edexcel GCE in
Geography (9GE0/04)
Unit 4: Independent Investigation

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Introduction

The introduction of an Independent Investigation as a central part of the GCE specification is common to all awarding bodies and driven by the view, held by many, that Geography should have research and fieldwork at its core. Given that, insofar as Edexcel/Pearson are concerned, the last time students were obliged to produce similar pieces of coursework based on fieldwork experiences was in 2008. It was hardly surprising that many centres, having no experience of the processes involved, were apprehensive.

For the most part centres responded positively to this challenge and perhaps found the process less daunting than some had imagined at the outset. The vast majority of pieces seen by a very experienced moderating team were reasonably well designed and competently executed investigations. Of course, there was a wide range of outcomes but the internal marking processes carried out in centres were largely applied with both accuracy and sensitivity using the assessment criteria carefully. This made the external moderation process relatively straightforward for the vast majority of centres.

Obviously, this report will focus on identifying issues that are of some concern so it is important to recall that these were the exceptions and not the rule in this first year of the cycle.

The report is structured by presenting feedback on each element in the assessment criteria, in turn after a preamble on the function of the independent investigation form.

The role of the independent investigation form

The role of the independent investigation form is perhaps seen as a marginal rather than central part of the process by too many centres. Some centres failed to include candidate forms in their submission whilst others were annotated in a fashion that suggested that they had been 'retrofitted' to match the outcome of the research. This undermines the process and, in reality, is very unhelpful for candidates. Their research may very well take them in directions that they had not expected when originally submitting their proposal form; that is not an issue to be hidden by altering the form late on in the process but to be addressed in their evaluation. That will help rather than hinder the overall quality of their work.

There was a detectable correlation between the detail and substance of the independent investigation forms and the quality of the ensuing work. Teachers can, of course, offer broad, generic advice at this stage and will be in a stronger position to do so more effectively next year given their experiences in the 2018 cycle. At the early planning stage there a number of questions that are appropriate to raise. These are presented below in no particular order of priority;

- Is the scale of the investigation appropriate – it is, for example, not appropriate to undertake a city-wide appraisal of the 'success of regeneration'?
- Do the questions and or hypothesis identified go beyond basic and largely sterile truisms as in 'do the beach profiles vary?'
- Do the primary data collection techniques suggested correspond with the overall aim of the investigation or do some apparently appear to be data collection for its own sake, perhaps hoping that something might 'turn up'?

- Do the primary data collection techniques suggested include any reference to appropriate sampling processes?
- Does the candidate offer any indication of the criteria to be used in evaluating, for example, 'success' or 'difference' or 'change'?
- Do the references to secondary data sources appear pertinent and productive?

Sadly, but not entirely unexpectedly a small minority of centres took insufficient care to ensure that candidates work was truly independent. This was most evident when titles varied only by a word here and an emphasis there. Centres are advised to read their E9 feedback forms with great care so that future cohorts are not disadvantaged when external moderation makes the necessary adjustment to marks when there are significant concerns over the independence of the students in the selection of both their title and the accompanying hypotheses and sub-questions. To reiterate, candidates must develop their own titles – that is the central function of the form. There is advice on this on the Pearson web site including clear instructions as to what teachers and centres can and cannot do. The worst-case scenario here is, of course, malpractice which has serious ramifications for a centre and its candidates.

Purpose of the investigation

There was a more or less equal divide between broadly 'physical' and broadly 'human' investigations. The 'physical' pieces were, unsurprisingly, dominated by coastal environments but with a healthy sprinkling of work conducted in glacial environments too. Investigations rooted in the water cycle were occasionally more problematic in that although Topic 5 offers many opportunities for fieldwork investigations a concentration on fluvial processes without referencing their context is straining the specification link to breaking point. Thus, centres who approved proposal forms that were, for example, simply tests of the Bradshaw model took the risk of disadvantaging their own candidates in several ways, not least the lack of reinforcement of specification understanding that they could then carry into their answers to Paper 1 questions. Similar issues occurred with some of the 'human' titles where the purpose of the work was identified, for example, as a test of the legitimacy of the Burgess model in explaining spatial variations in an English market town.

It is important to note that theoretical links were generally quite strong placing the purpose into a legitimate theoretical background. Some took rather too much space (and time) spelling out the details of the various models and theories without being selective enough or, perhaps, brave enough to extract the parts relevant to their own investigations.

Most centres had, quite rightly, helped to prepare their candidates by systematically introducing them to a wide range of potential sources that went well beyond the textbooks that they used. Google Scholar was widely used as was JSTOR as well as the generally available magazines and websites. Not all candidates subsequently reflected on either the quality or reliability of these sources which later impacted on their marks in the final, heavily weighted section of the assessment criteria; Conclusions and Critical Evaluation.

As indicated earlier the main weaknesses in this section were;

1. Inadequate development of a hypothesis or hypotheses
2. Lack of clarity over key terms
3. Lack of clear criteria for analysis or evaluation

These three issues overlap and can be easily avoided with better preparation both in classwork and fieldwork. Two of them (2 & 3) are closely related to comparable weaknesses in the development of arguments in the extended writing on the three externally examined papers. The first of these has already been touched upon; the inadequate development of hypotheses. Too many are statements of the obvious of the 'Do things vary?' type without identifying any possible agencies of these variations that might be explored. Investigations of, for example, variations in crime in a London borough, quite apart from being conducted at an inappropriate scale need to develop an idea of why 'crime' might vary from place to place. Resting with the same theme it is equally important to identify what constitutes 'crime'; the key term in this investigation. Very many at the lower end of the ability range failed to do this basic intellectual leg work. To exacerbate the issue a failure to establish the criteria for success or failure of a particular scheme or project, most often regeneration or coastal defences, was often an unwelcome feature of less impressive investigations. Thus, the very many investigations which explored the success or failure of urban regeneration projects never properly established how one would recognise success when one saw it, or perhaps measured it. This underlines just how important a holistic approach to question deconstruction is in preparing candidates to answer questions on the externally marked papers. Many of the high tariff questions require candidates to assess or evaluate 'success' or 'failure' or the 'relative importance' of one factor as opposed to another, and assuming that they are armed with the skills to know how to address these questions it obviously allows them to construct their own questions and hypotheses for their investigation. Time spent in Year 11 developing these skills is vital.

Field Methodologies and Data Collection

As was to be expected there was a very wide range of methodologies used in the data collection process. To generalise, the methods chosen for the physical investigations were probably simpler, more traditional and certainly more clearly under the control of the candidates who, assuming that the natural environmental conditions were not hostile, could gather data at their own pace at times that suited them. It is perfectly possible, and probably good practice, to advise candidates that most 'human' fieldwork is likely to be more dependent on others and not to minimise the issues that arise in, for example, gathering questionnaire responses.

An understanding of sampling and the inherent weaknesses that all types of sampling have are fundamental skills that candidates need reminding of before they submit their proposal forms. Whether it be beach profiles, urban transects, measurements of footfall or the distribution of questionnaires one obvious stigmata of the more coherent investigations was their justification of location choices for this data gathering. These candidates addressed the question; why these transects at these locations? One of the obvious issues of centre led fieldwork was that the students, even when adequately advised as to the need to differentiate their titles and hypotheses were not party to the decision of why they had been deposited on that particular beach or in that particular town at that particular time.

In the widely disseminated advice to centres the importance of understanding the ethical dimensions of fieldwork has been a constant and repeated theme. For the most part candidates referenced this as guided by the assessment criteria. It wasn't always easy to do this in the context of purely physical investigations beyond stressing the need to respect both the natural environment itself and the use of its resources by others. These candidates tended to have more success in examining

the other aspect of this assessment criteria by exploring the utility and validity of (their) chosen methodologies.

Centres are encouraged to refer to Pearson website resources should they need further guidance on the ethical dimensions of fieldwork and how candidates need to weave it into their text.

Happily, there was very little evidence that 'fieldwork' was more imagined than real. That is to say that it is pleasing to report that moderators found little to no evidence that investigations had been entirely classroom based using old, perhaps recycled data. Fieldwork is obviously an activity that takes place outside the classroom, as the specification makes clear, and which centres are obliged to take note of before initiating the process.

However very few investigations can be entirely built on primary data gathered in the field. Not only do they need an adequate theoretical framework derived from researched sources, through which the candidates can rationalise the primary data collection methods used but they would also, in the vast majority of cases, benefit from secondary numeric data. This might be meteorological and/or discharge data in some cases, wave height data in others, providing the scaffolding for an adequate comparison of their own results and perhaps providing a focus for the hypotheses. In that respects the planning process needs to advance the role of this research before submission of the proposal form. In this year's cohort there was sometimes an absence of secondary data, especially from those who rooted their investigations in either Topic 4a or 4b. This was especially notable in those that chose to explore the 'success' of regeneration schemes. Although sometimes excellent, these investigations were often problematic because of the difficulty of gathering information about the chosen location **before** the regeneration was undertaken. This obviously inhibited measurements of success given the difficulty of comparing the 'before' with the 'after'. Secondary data came to the rescue with the most successful of these investigations. They often used one or more of three sites offering respectively, 2011 census data from Datashine, the index of multiple deprivation data and the extremely rich and multi-layered CDRC website;

http://dclgapps.communities.gov.uk/imd/idmap.html

http://datashine.org.uk/#table=QS411EW&col=QS411EW0007&ramp=YlOrRd&layers=BTTT&zoom=12&lon=-0.1500&lat=51.5200

https://maps.cdrc.ac.uk/#/indicators/churn/default/BTTTFFT/10/-0.1500/51.5200/

Thus, the most impressive investigations had clearly referenced secondary data for their chosen locations before designing their primary data collection methodology. Those centres who had routinely used these sites (and many others) in the teaching of these topics obviously advantaged their candidates by so doing.

Data representation, analysis, interpretation and evaluation of techniques and methodologies

Data representation and evaluation of those techniques

Data representation is assessed as part of the rather cumbersomely entitled 'Data Representation, Analysis, Interpretation and Evaluation of Techniques and Methodologies used' section of the assessment criteria carrying 24 marks. Data representation is only one bullet point of the all-important descriptors but obviously

a good selection of presentation methods much assists meaningful analysis. There was, in general terms, a good range of both cartographical and graphical presentational techniques ranging from the use of those available in Microsoft Excel to some thoughtful and appropriate use of GIS packages such as Arcinfo. Some searched for sophistication unnecessarily and several moderators reported that photographs were underused and maps left unannotated.

Many candidates tried to use statistics as part of their analysis, not always successfully. Once again, the message is clear enough that embedding these techniques in the delivery of the specification in the classroom is vital, along with clear instructions about the appropriateness of them with different types of data. The most successful candidates used statistics meaningfully and critically showing, for example, an understanding of significance and the ability to evaluate the chosen methods forensically. As an illustration, some saw that it was impossible to know what sample size might yield meaningful results if one doesn't know the total population of, for example, tourists in Malham on any one particular day.

There are several guides available to help students and centres with the use of appropriate statistical methods and centres are encouraged to recommend the RGS 'A Student Guide to the A Level Independent Investigation (Non-examined Assessment—NEA)' to their students.

Analysis and interpretation and its evaluation

More heavily weighted in the assessment criteria in this section than data presentation skills, analysis was along with the final section, the element of the investigation that best differentiated across the cohort of candidates. Inevitably a large part of that differentiation was driven by the quality of the data itself but to return to a major theme of this report even more significant was the internal coherence of the argument. Candidates need to check whether their analysis is evidence based rather than speculatively assertive in nature and to be self-aware and self-critical of the inevitable weaknesses in the outcomes of their research. Centres should, in the pre-proposal lead-in period empower candidates to;

- Analyse what is front of you and not what they hoped would be the outcome of their data collection
- Accept that any relationships sought in their questions and hypotheses may not be found
- Acknowledge that the lack of a relationship is no more or less a positive outcome than the contrary
- Allow for the inevitable fact that given time constraints their investigation is partial and flawed, thus the analysis and the conclusions are always tentative.

There is a range of phrases that candidates can use to cover these elements but once again they are closely related to the very same range of phrases that candidates will be using in their extended writing on the other papers.

Most candidates analysed as they went along which is, in almost all cases, a better approach than presenting data in isolation from the summative text. At this stage it is important that candidates avoid constant repetition by presenting annotated maps and diagrams but also covering the same ground in the text below. Better to evaluate as they go along with analysis followed by some reflective comments about the accuracy and the reliability of that analysis. Once again vocabulary matters here; candidates who 'prove' that this or that hypothesis is correct are presenting information in a far less sophisticated way than those who argue that the data 'suggests that' there is/there is not a relationship and also use qualifying

phases as in, 'it is possible that…'. These techniques are learnable skills which are, once again, directly transferable from the skill-set needed to address 'Assess' and 'Evaluate' questions on the three externally examined papers.

Conclusions and Critical Evaluation of the overall investigation.

Given that this section of the assessment criteria carries 24 marks, the same as the previous section, it is worthwhile noting that it was the least well completed part of many investigations. So once again this section was strongly discriminatory and offers more opportunities for improving future candidate performance than any other. It was felt that, to be direct, some conclusions were too;

- brief
- arbitrary and / or
- dogmatic

Notwithstanding the fact that both in their analysis and their on-going evaluation some candidates spread their conclusions over much of the analytical material this does not replace the need to pull together the whole work to reflect on their original propositions and hypotheses. At the lower end of the mark range conclusions tended to simply assert that all was well and the hypotheses were proved to be true. These were often arbitrary statements that only selectively used the evidence gathered. The statements were also dogmatic in that they claimed certainty where none was to be found in their own evidence. In other words, there was a lack of coherence in the argument, if indeed there was an argument. At the other end of the mark range those that reached Level 4 were able to pull the various strands of the piece together to come to an overarching conclusion.

Needless to say, the quality of this section was strongly driven by the breadth and depth of the research as well as the quality of the analysis of the data generated by that research. If, as was the case with some less well constructed research, there were only one or two pieces of primary evidence offered the conclusions were inevitably very constrained. If the investigation had generated several sets of primary data results and perhaps one or two comparative sets of secondary data there was far more material to work on in this final part of the investigation. In the writing up of these investigations candidates would be well advised to keep a very close eye on their original proposal form and the hypotheses and questions that they identified.

Summary

There were some outstanding, imaginative and insightful investigations seen by the external moderating team who duly recorded those and fed back to centres through their E9s. Lessons have been learned in many centres and the ones to carry forward to the 2019 series include;

- Independent means independent
- The proposal form is important

- Hypotheses and questions need to be meaningful and testable
- Primary data collection needs to be purposeful and varied
- It is OK not to uncover a relationship
- Analysis needs to be evidence based
- Conclusions need to holistic and not just the summary of on-going analysis
- Evaluation needs to recognise the inevitable limitations of research