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PSYCH'D

Special Research Methods Edition

INTRODUCTION

Welcome to the second edition of Psych'd. The magazine aims to provide key information, suggestions for teaching, updates and news as well as interesting features relating to our WJEC and Eduqas Psychology qualifications. We hope you really enjoy reading it and find the magazine interesting and useful.

It is hard to believe that this has been the second year of the new specifications. It's been great to hear how much the students have enjoyed undertaking practical research for their personal investigations and I'm so pleased that some have taken the time to write about it for this magazine. Therefore, this edition focuses on the research methods part of our courses.

Thanks to all those who have contributed to this second edition. I hope you all find the variety of articles stimulating and inspiring for your classroom. We would be very grateful for any further contributions that share good practice or classroom experiences for up and coming editions. If you would like to write an article, or share a few pithy top tips, please get in touch.

Best wishes

Rachel

CONTENTS

Introduction	3
Contents	4
Submitting Articles	5
An active way to teach ways of assessing validity	6
Personal Investigations: A Guide for the Terrified	7
CPD Events	11
How we conducted our experiment on bilingualism for our Personal Investigation	13
Questionable Research Practices	15
An observation of gender differences in food choices	17
Important Dates	20
Resources	21
Skewed Distributions	22
An Insight into the Potential Issues of a Personal Investigation	24
Sign Up	28

Calling all teachers of Psychology... Psych'd needs you!

WJEC Eduqas would like to hear from you!

Psych'd is our first subject specific online magazine created for teachers of Psychology using contributions from teachers across England and Wales. We need contributions from teachers just like you to include in future issued of Psych'd.

Have you had a unique classroom experience?
Have you taught in an unusual location or situation?
Do you have a humorous or inspiring story from the classroom?
Or do you even just have a few great classroom tips you would like to share?

If you have answered yes to any of the above and are interested in having your article read by thousands of Psychology teachers all over the world then you could be the perfect addition to a future issue of Psych'd.

You don't have to have any previous writing experience (although if you do that's perfectly fine as well) just send any ideas or even finished articles to Rachel.Dodge@wjec.co.uk.

However if you don't want to write an article, or share some tips don't despair! We are always looking for feedback on the website and you could be a part of making Psych'd the best magazine it can be. Email any thoughts on previous issues or ideas for future issues to Rachel.Dodge@wjec.co.uk.

An active way to teach ways of assessing validity

By Jayne Manley, Director of Faculty (Maths and Science), St Brendan's Sixth Form College

This was an idea that a colleague I believe brought back from a training session. I have used it several times over the years to teach the different ways of assessing validity and have found that it is usually effective at getting the students to understand and retain the concepts especially when you refer to the water lesson for recall when revising.

Materials:

- Water container preferably with a lip so you can pour from it
- Tray (if you want to avoid too much spillage on the desks or the students)
- Paper (decide how many pieces per team - 3-5 sheets should be ample)
- Scissors (to cut only)
- Paper towels for any spills
- Water

Prior to the activity you will have needed to introduce the students to the idea of validity.

Split the students up into teams - if it's a small class they could do this individually.

Give them the task (could be on paper or whiteboard – probably best not verbally as they will probably keep trying to challenge the rules).

Task

Using the paper that you have been given you need to produce something that can hold water. It must be able to stand up by itself and it must be capable of holding water for a period of time (could say for 20 or 30 seconds, 1 minute etc. – depending on how much time you have.) You can use the scissors to cut the paper but they must not be used in the construction. No material other than the paper can make up your water carrier.

- Set a time limit – 10-15 minutes and watch.
- Collect in all the water carriers at the front of the class.
- Ask the students to look at them and see what ones they think will work.

Then explain that they have just conducted a FACE validity check as they have looked at the material/questionnaire/experimental design and assessed that it is a valid measure.

Next (could do in advance) – appoint an expert in water containers – (could invite a physics, DT or a kitchen colleague in if available). They then do an inspection of the water containers and after this you can explain that this is a CONTENT VALIDITY check as an EXPERT in that field has assessed it.

Now for the fun ...

Get a volunteer from each group to come to the front of the class and hold their water container, you could use the tray at this point if you wanted to. Tell them you are assessing it against the jug/flask etc. and pour water into each of the students' containers (you may want to agree an amount that it needs to contain as the students get very competitive and will claim bias – good opportunity to reinforce another research methods concept). Time the containers performance for the agreed time. I do this one by one rather than have all of them at the front as it might get messy and also builds competition and suspense.

When all groups have finished you can then explain CONCURRENT VALIDITY. I draw an analogy with prison sentences with concurrent sentences running at the same time, alongside each other (useful if you have students also studying Law). We compare the validity of a current recognised measuring tool (the flask or water jug) alongside a new 'tool' that claims to be doing the same thing, 'paper water carriers'. If the paper water carriers they have made contain water for the time that you specified they needed to, then they have CONCURRENT VALIDITY.

I've found students get really competitive and engage with this. You are likely to get a variety of constructions - I have had ninja stars, paper boxes as well as funnel like towers, it can get really creative and often the students' constructions are really effective for short periods of time.

Personal Investigations: A Guide for the Terrified

– *Natalie Austin,
Teacher of psychology and Head
of PSHE, Tettenhall College*

One of the biggest changes from the old WJEC specification to the new Eduqas/WJEC specification introduced in 2015 are the personal investigations. Each year, the students must conduct two of their own psychological investigations, which they will then be asked about in the exam. Personally, this element of the new specification is probably my favourite change. I have been teaching WJEC since I started at my current school as an NQT back in 2010. As much as I can, I try to incorporate practical elements of research methods into my lessons anyway. Each year, I have used the time between the end of the AS exams and the summer holiday as a time for students to conduct their own studies. I find this time of year perfect for this activity; it is that dreaded 'dead time' where whatever you teach will need to be repeated in September (students inevitably forget what they have learned due to *vacation-induced amnesia*.)

For me, the incorporation of practical investigations into the specification was welcome news indeed. There is nothing better than hands-on psychological investigation to hone your research methods skills. Research methods is not the most glamorous of topics. I often see my students' eyes glaze over as I announce that the topic of today's lesson will be *experimental design*, or *inferential statistics*. It lacks the punch of the Oedipus Complex, or the shock factor of Milgram (pun intended). However, without an understanding of the methods used by psychologists to investigate behaviour, and more importantly, the ability to evaluate and critically assess these methods, psychology would be reduced to the memorisation of a list of interesting factoids.

For psychology teachers who studied the subject at university, conducting a small-scale study as part of an A Level should be relatively straightforward. However, a large number of psychology teachers are not subject specialists, and therefore, the thought of carrying out an investigation from conception to completion may seem overwhelming. The following then is a suggestion of a process that you could follow. This is by no means the only way in which you could go about the investigations. However, hopefully this guide will hit all the key bases, and provide teachers with a clear scaffold that they can follow as they develop confidence in their own research methods skills.

The two investigations for 2016 Eduqas were:

- An observation of gender differences in food choice
- A correlation between age and reaction time

Throughout the steps below, I will refer back to these two studies to demonstrate the procedures I used.

1. Class, group or individual?

One of the first tasks is to decide how to divide up the class. Are the whole class going to work together on a single investigation? Will there be small groups within the class working together? Or will each student be working alone on their own investigation? The answer to this question will really depend upon the size and ability range of your class. I would recommend that if they are working in groups, these groups should be no bigger than four. Any more, and you will find social loafing, or run the risk of disagreements within groups on how to do the investigation. If you have very bright, motivated students, having them work solo may be possible. However, the amount of work required may be overwhelming for some students working alone. Having the whole class work together on a single investigation is possible, but care needs to be taken that each student is assigned a role and given a responsibility.

Secondly, is the whole class going to do the same investigation or will there be a number of different investigations in the same class with each group or individual doing something different? The former is easier to manage, but the latter gives more freedom and responsibility to individual groups. My advice would be that for the first investigation, it is easier to have the whole class doing the same investigation. The advantage is that all the planning and resources will be the same for everyone, and it is easier as a teacher to oversee one single investigation rather than half a dozen different ones.

Thirdly, how will the data be collected? Will each group/individual find their own participants and collect data, or will each group/individual be responsible for finding a certain number of participants and then the data pooled and shared by the class? The latter can only be done if the whole class is doing the same study, but it does mean that you will be able to collect much more data.

Lastly, who will have responsibility for doing the write-up of the investigation? Will each group produce one write-

up? If so, care needs to be taken that each member of each group contributes to the write-up. Will the whole class produce a single write-up? This may be tricky if you have a large class. A simpler solution may be to have each individual student produce their own write-up. This can be done regardless of whether they worked in groups, as a class or alone.

As I work in a small boarding school, there are only 4 students in my Upper Sixth class. Therefore, I decided that they would all work on the same two investigations. However, when it came to the write-up, I had them work collaboratively on the correlation (each student was given a section of the write up to complete) and have them produce individual write-ups for the observation. I felt that this was a good compromise as two full written write-ups may have been a challenge for some students.

2. Previous research

Although a justification for the study is not required by the specification, I found it useful to have a look at what previous research into reaction time and food choice had found. While textbooks can be a good source of previous studies, I found that a better resource is Google Scholar (<https://scholar.google.co.uk/>). By typing in keywords, you can find the abstracts (and sometimes full texts) of millions of studies. By looking at what previous studies have found, you can better formulate a hypothesis. It can also give you ideas for how to carry out your study. There is nothing wrong with doing a straight replication of a previous study (as replication is one of the foundations of the scientific method).

You could do this research in a number of ways. You could show your class how to use Google Scholar and set as homework to find one or two studies that have investigated what you are interested in. Another way (and what I did with my class) is to have Google Scholar up on the board, and spend 15 minutes or so looking at research to get a feel for the topic.

From our research, we found that previous studies have found that reaction time tends to become slower as people age, and that boys are more likely to prefer sweet and fatty foods than girls. This informed the hypotheses that we wrote.

3. Spitballing

This is the fun bit! By the time you do your personal investigations, the students should have a reasonably good grasp on research methods. Here is where they get the chance to be creative. Give them time (either in groups or as a class) to come up with all the possible ways in which their study can be done. At this stage, don't worry too much about what is practical and doable (that will come later). For now, give them the opportunity to be creative. Encourage them to think about the

various ways in which you could measure the variables. Who could they do the study on? Where could it be done? Encourage them to be critical and assess the ideas that they have. Make a note of each idea.

Once you have lots of ideas, start eliminating those that are impractical. For example, if a study would involve the purchase of high tech equipment, or would require a sample of premiership footballers, cross it off the list! Will the study take six months to complete? It's gone! Start getting them thinking about what they, as sixth formers with a limited (or probably non-existent!) budget can practically do. Once you have got rid of the impractical ideas, start critically assessing the ideas that are left. Essentially, try to find the study that would give the most valid data. At this point, a rough idea of what you are going to do is enough. In the next stage, you will really start to pin down the specifics.

Before spitballing, you as a teacher should have at least one idea of an investigation in mind. It is possible that when the students have burned through all their ideas, there may be nothing left. You need to be able to suggest an alternative, or guide the students towards the idea you have.

My class decided that they were going to use the students at the school as participants in both studies. For the reaction time correlation, there were going to use my classroom as a lab, and do a test of reaction time which they would then correlate with the students' ages. For the food choice observation, they would observe the different foods that boys and girls chose at the school café at break time.

An important piece of advice I would give is to try and keep the investigation as simple as you can. There is no need to try and reinvent the wheel. The simpler the study, the easier it will be on both you and your students. It will also be easier to analyse your data.

4. The Nitty Gritty

Once you have decided on a rough idea of how the study will be done, you need to now develop a step by step plan of the procedures. This is more complicated than it looks, and it can be a real test of the students' research methods skills! The following subheadings are the specific content required by the specification. In the *Psychology A-Level Book 2* you can find detailed descriptions of what you are required to include so I won't repeat that here. Instead, I will give you some advice that you may find useful.

a. Hypothesis: When justifying why you chose a directional or non-directional hypothesis, it may be useful to refer to previous research. For example, my students decided on a directional hypothesis for reaction time; ***There will be a positive correlation between age and reaction time.*** Their justification for this was that previous research had suggested that reaction time slows with age.

b. Variables: One of the trickiest things to decide upon is how to actually operationalise your variables. You need to be able to measure your variables accurately and reliably. Try to avoid any method that relies upon the subjective interpretation of the researchers. A good piece of advice is to look at the App Store on your smartphone, as often there will be an app designed to measure what you are investigating. For example, my students found a free reaction time test app which they used for their study. It is always worth doing a short pilot study to ensure that your method of operationalising works. My students decided that the gender differences in food choice observation would focus on sweet vs savoury foods. They went to the café and tried out their coding system to ensure that it worked, and that all the foods available at the café could be easily categorised.

c. Methodology, design and procedure: The location of your study will really depend upon the investigation you have been given by WJEC/Eduqas. I would advise to do the study within the school grounds if possible. Not only does this make it easier to find participants, it also cuts down on some of the potential ethical issues. However, performing research in the field can be very rewarding, and some investigations may require it.

I would encourage you to get your students to write up a full and detailed set of procedures before they collect any data. It is good practice to question every decision that they make and ask them to justify it. I always tell them to imagine that they were writing their procedures for someone who wanted to replicate their study. A good way to ensure this is to get a non-psychology student to read it over and look for gaps.

In particular, students should be designing studies with reliability and validity at the forefront of their minds. While it will probably be impossible to design a study that has no validity or reliability issues, they need to demonstrate that they have anticipated and tried to minimise these issues. For example, my students

ensured that each participant would experience the reaction time test in the same way by having a designated place where the participants' hands would be placed during the test.

As mentioned above, a pilot study is a useful way to iron out any potential issues that might not be apparent before the study. It also works as good practice so that when it comes to do the actual study, each student knows what their role is.

d. Sampling: The most likely method of sampling will be opportunity/volunteer. The easiest sample of participants to obtain will be fellow students. For our reaction time experiment, the students made an announcement in assembly that the study would be running for two lunchtimes, and that students who volunteered would be given a house point. Using fellow students was also beneficial as it allows the wider student body to get to experience a little bit of psychology, and helped them understand what psychologists do (it's not all about 'crazy people' ...).

An obvious limit of using students is that the age range is limited. Should you need a wider range of ages, don't be afraid to ask fellow teachers to help and be participants. In my experience, teachers make good participants! Alternately, each student could be given a quota of participants, and are responsible for collecting data individually which is then pooled as a class. This could involve performing their study on family or friends outside of school.

e. Descriptive statistics: The measure of central tendency and measure of dispersion used will obviously depend upon the level of the data that you collect. It may be worth taking this into account when designing your study. When it comes to calculating standard deviation, you could make the students calculate it by hand (as they will need to be able to do this in the exam) or you can use an online calculator that will do it for you.

f. Graphical representations: Again, these needs to be suitable for the data collected. It is good practice for the exams for the students to do these themselves by hand. Alternatively, Excel is a good tool to use.

g. Inferential statistics: It is a good idea to decide upon which statistical test you are going to use before you conduct your research. It would be terrible to go to the effort of collecting your data and then realise that it cannot be analysed! It is your choice whether you want the students to calculate the statistical tests themselves. While this would give them a deeper understanding into the tests they need to know for the exam, they will never have to calculate them by hand. I tend to use online calculators such as <http://www.socscistatistics.com/tests/> which give you observed values for all the tests on the specification.

Don't worry if your result is not significant! It can be disappointing to go through all that work and not find out anything significant. However, a negative result can be just as interesting as a positive one. And remember,

the whole point of the personal investigations is to give students hands-on experience with research methods, not to redefine the very nature of psychological understanding!

h. Reliability: Here the students need to evaluate their study in terms of reliability. What did they do to ensure that their study could be replicated? What could lower the reliability? How could they improve reliability if the study were to be done again?

i. Validity: As above, the students need to evaluate how valid their study was. Did it have both internal and external validity? What did they do to ensure issues of validity were minimised? What could be done to improve the validity of the study if it were done again?

j. Ethics: Even though this is an A-Level project, the BPS Guidance on ethical research still needs to be adhered to, especially if the participants are fellow students. Two particular issues are consent and debriefing. For our reaction time study, the students wrote their own consent form and debrief form. The consent form gave an overview of the study, told them that they could withdraw at any time (and still receive their house point) and asked them to sign to confirm that they had read and understood it. These consent forms were kept safe in a folder. After the study, each participant was given a debrief slip that gave them the full information about the study, my contact email, and reassured them that the data would be kept confidential, but that they could withdraw their results if they wished.

It is also important to keep data confidential, especially if the participants are their peers. We decided that each participant would be given a participant number which would be written on their consent form. Should a student then decide to withdraw their data, we could just check their participant number on the consent form and remove them from the study.

For the observation, a sign was placed on the door of the café stating that an observation was taking place, and that should anyone not wish to take part, they could talk to one of the sixth formers holding a clipboard. The students also got permission from the café staff beforehand. As this observation took place in a public place where the participants would expect to be seen anyway, a debrief was not necessary.

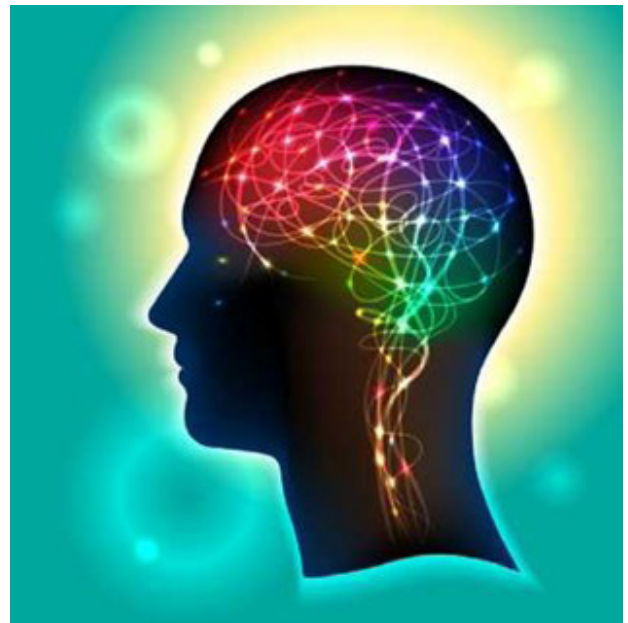
It is always worth asking senior management to have a look over your study before you conduct it to check for any potential ethical issues that you may have missed.

5. The Write-up

Once the study has been completed, the students should complete their write-ups. As it may be months between carrying out their investigation and the exam itself, these will serve as revision guides. I give my students a detailed bullet pointed list of what they need to include in their write-up. I strongly suggest that they do their write-ups on a computer, as they will most likely need to make amendments to improve. They should do at least one redraft of their write-up.

Peer review is an excellent way for students to both improve their write-ups, and to practice their evaluation skills. Students can act as teachers, going to town with a red pen on each other's investigations! If the students have worked on different projects, it is worth getting them to present their findings to the rest of the class. If the participants in your study are other members of the school community, the students could even present their findings in a school assembly.

Hopefully this guide has given you a little more confidence to lead your budding psychologists in their investigations. Remember, keep the studies simple, get the students to do the bulk of the work, and don't be disheartened if your results are not significant. The investigations can be daunting, and they do involve a lot of planning. However, they are by far the best way for psychology students to get hands on experience with real psychology.



Why not take a look at our '**Planning your personal investigation**' resource.

<https://goo.gl/UPd4fP>

Eduqas GCE Psychology

Assessment > Classroom Practice

Course Aims:

This full day course is designed for practitioners teaching the Eduqas GCE Psychology specification. Each session will review the recent summer assessment series, exploring marked candidates' work. It will also consider how feedback on assessments can inform, develop and improve teaching and learning.

Outcomes for delegates:

- An opportunity to review external assessments and exemplar candidate materials.
- An opportunity to review teaching and learning strategies.
- An opportunity to network with colleagues and subject specification specialists.

You will also be provided with a comprehensive pack of materials which you can take away with you and share with colleagues.

Course Personnel:

The course is led by subject specialists who have in-depth experience and knowledge of the content. They will be examiners or teachers with a wealth of experience in this field.

Course Costs:

Cost £210 (including refreshments and materials).

- If your preferred event is closed for online bookings, please email the CPD Team cpd@eduqas.co.uk to book or make an enquiry.
- Please note that a sound recording will be made at each meeting.
- By booking a face-to-face course, you agree to WJEC's Terms and Conditions. To view, please visit www.wjec.co.uk/cpd.

We look forward to seeing you at one of our events soon.

Course dates:

Centres in England only

Friday 03 November 2017,
9:30 am - 3:30 pm
London

Wednesday 08 November 2017,
9:30 am - 3:30 pm
Birmingham

Thursday 09 November 2017,
9:30 am - 3:30 pm
Bristol

Friday 10 November 2017,
9:30 am - 3:30 pm
Manchester

Contact Details

Telephone: 029 20265024

Email: cpd@eduqas.co.uk

WJEC GCE Psychology

Assessment > Classroom Practice

Course Aims:

This full day course is designed for practitioners teaching the WJEC GCE Psychology specification. Each session will review the recent summer assessment series for both AS and A2, exploring examples of marked candidates' work. It will also consider how feedback on assessments can inform, develop and improve teaching and learning.

Outcomes for delegates:

- An opportunity to review external assessments and exemplar candidate materials.
- An opportunity to review teaching and learning strategies.
- An opportunity to network with colleagues and subject specification specialists.

You will also be provided with a comprehensive pack of materials which you can take away with you and share with colleagues.

Course Personnel:

The course is led by subject specialists alongside the Subject Officer.

Course Costs:

Cost £210 (including refreshments and materials).

- If your preferred event is closed for online bookings, please email the CPD Team ccpd@wjec.co.uk to book or make an enquiry.
- Please note that a sound recording will be made at each meeting.
- By booking a face-to-face course, you agree to WJEC's Terms and Conditions. To view, please visit www.wjec.co.uk/cpd.

We look forward to seeing you at one of our events soon.

Course dates:

Centres in Wales only

Friday 13 October 2017,
9:30 am - 3:30 pm
Llandudno

Friday 20 October 2017,
9:30 am - 3:30 pm
Cardiff

Contact Details

Telephone: 029 20265024

Email: cpd@wjec.co.uk

How we conducted our experiment on bilingualism for our Personal Investigation



By Charlotte Draper and Molly McGiveron, Bassaleg School

We conducted an experiment on bilingualism and how it affects the famous Stroop test. Our experimental hypothesis was as follows:

It will take more time (in seconds) to complete a conflicting Welsh word stimuli Stroop test when responding in second language (Welsh) than it will when responding in first language (English).

The decision to have a directional hypothesis was based on the previous research that has been done on bilingualism and stroop effects (such as the experiment testing the Stroop effect with English/Russian by Aleksandra Bril and Rebecca Green), but no pilot study was done.

Sampling

As this research was part of the Psychology A Level course, the participants ended up being the 22 Psychology A Level students at our school; 16 females and 6 males; 17 and 18 years old; all have some Welsh language skills. This opportunity sample was highly convenient and also much less time consuming than other sampling techniques such as quota sampling. Opportunity samples have a tendency to be unrepresentative of the target population, but there is no reason for the participants to be any different to all other Psychology A Level students.

Procedures

We began this research by giving all participants information on what a stroop test is and what they would be doing in the experiment. All participants were then put in pairs and randomly allocated to be in either group A or B. Participant B turned away from the screen and was given the answers to each condition whilst participant A faced the screen displaying the test. Once the observer had said 'go', participant A completed the test starting with condition 1 whilst participant B recorded the time and ensured A was answering correctly with the prompt of "Error"

if any mistakes **were** made. This process was repeated up to condition 5. Participants A and B then swapped places and participant B completed the test with the conditions in a different order to counter balance whilst participant A timed and checked answers.

Descriptive Statistics

The results from each participant were recorded. The data collected allowed us to see the difference between completing the conflicting Welsh word stimuli stroop test when responding in second language (Welsh) and responding in first language (English). The most appropriate descriptive statistic, due to no two sets of data being the same, was the mean which was calculated to be an average difference of 10.43238095 seconds, with the condition in which the test was completed in first language (English) being the faster one.

Inferential Statistics

As this was a test of difference, and the data was both ratio and related, the most appropriate inferential statistic to use was the Wilcoxon matched pairs test. We found the observed value of T to equal 6, and when $p = 0.005$ with a directional hypothesis, the critical value was 48. This shows that our results were statistically significant as $6 < 48$ so it was suitable to accept our directional hypothesis.

Reliability

There were several issues of reliability that concerned us before we began the experiment such as differences in timing due to human error, different levels of Welsh language skills, the visual acuity of participants, and levels of familiarity of participants with the Stroop test. Some of these issues were controlled whilst others remained to be potential extraneous variables. We were able to standardise the distance that participants sat from the screen and also the knowledge that participants had of the Stroop test. In a repeat of this research, reliability could be improved by making sure that each participant had the same or similar qualifications in the second language (Welsh) e.g. at least a grade B at GCSE. A computerised timing system would also be useful in removing the danger of human error.

Validity

Before the experiment, we were also aware of validity issues that may have cropped up during the research such as order effects and ensuring the test was true to the original research done by Stroop. We dealt with the order effects by counterbalancing the order in which the conditions were completed for groups A and B,

and we also used the colours that were in the original Stroop test (red, green, blue, purple, brown) unlike later editions of the test. However, there were some validity issues that were unforeseen such as the blue and purple ink being very similar colours and therefore confusing the participants, as well as participants distracting one another whilst completing the test. This could have been dealt with quite simply by checking the similarity of colours before the research started, and by having the participants complete the conditions individually rather than in groups, or whilst wearing noise-cancelling headphones.

Ethics

The nature of the research suggested that it could possibly cause stress to the participants which is an ethical issue better to be avoided. However, it is not out of the 'norm' for A Level students to be completing tests and therefore this was not an issue of massive concern. The participants were given the right to withdraw too in case they did find the test to be overly stressful. Confidentiality was another potential ethical issue as some of the participants may not have wanted their results to be made public; they were therefore kept anonymous with no participant identifiers. This is the first piece of research that either of us has conducted, or even taken part in, but we have thoroughly enjoyed the whole process. We are both starting psychology degrees at university next year, and feel as though this has been a great foundation in terms of being able to understand the real-life applications of psychology, rather than just reading about it from a textbook! Following this investigation, we are both very much looking forward to completing further pieces of exciting research whilst studying for our degrees and maybe even in later life too.

Charlotte Draper - currently studying Psychology, English Literature, Mathematics and the Welsh Baccalaureate at Bassaleg School. She is hoping to start studying Psychology at the University of Bath in September 2017.

Molly McGiveron - currently studying Psychology, Mathematics, Biology and the Welsh Baccalaureate at Bassaleg School. She is hoping to start studying Psychology at Swansea University in September 2017.

Questionable Research Practices

*John Griffin,
Teacher of Psychology at
Bishop Vesey's Grammar School,
Birmingham*

In 2011, the British Psychological Society reported a US study that suggested research practices were very questionable and poor practice common (1). Four years later a more rigorous study, using the same questions and based in Germany, came to a far more muted conclusion – but there was still overclaiming of significant results amongst other slack practice (2).

A-level students will be familiar with criticisms of poor practice with the size and composition of samples at the top of the list – so much so that a former Chief Examiner (of another Awarding Body) used to advise students to name small biased samples of US university students as an issue regardless of the study, since it was so prevalent.

What other research methods issues are hiding in the woodwork?

One issue is marginal statistical significance. Loftus & Palmer (1974) in their second study claim that wording of the significant question alters the number of respondents seeing broken glass (3). Of the 150 participants, 122 didn't see any, so you might think a good conclusion would be that there was no effect. However they examined the 28 who did see broken glass, and found that the 16 in the 'smashed' group showed a statistically significant difference from the 7 and 6 respondents in the other groups.

Well that's OK, then? Er, well if one less participant in the 'smashed' group saw broken glass, the result would not have breached the 5% threshold for significance. Rather close to no result?

Oh, and yes, they were US university students.

What is it with all these sample issues? Well one problem is that about 90% of published psychology in the English language is either American or filtered through an American publication, and to be honest, it is only recently that English A-level textbooks started using more non-American research. A large proportion of the samples used would then be American (cultural issues), often

students (bias in terms of social class, possibly ethnic group, and intelligence) and even psychology students getting credits for participation. This does not exempt other countries from the same criticism!

Sample size has also been an issue. While many classic studies used quite large samples, some (such as Milgram's experimental variations 12-16 using only 20 participants) had quite small samples (4). This can also bring 'overclaiming' into focus when, for example, you have Zimbardo (in his 'prison study') claiming overall role conformity when only three of the 'guards' (Hellman, Landry & Burden) actually behaved in a sadistic manner, establishing and reinforcing norms of behaviour that others did not slavishly copy (5).

What about wholly misleading material? The most emphatic source of this is where studies conducted in unnatural circumstances (e.g. labs) come up against real-life studies. One of the most important claims about scientific psychology is that it can challenge anecdote and even 'common sense'. Yet sometimes we see that a moment's common sense reflection, a real-life incident or a field-based study can challenge the lab studies. Most students will be familiar with the eyewitness testimony problem. Lab studies show persistence of distortions of recall, whereas an evolutionary scientist would say 'It's evolutionary common sense that threatening incidents will be well recalled'. And so it generally proves with real-life studies like Yuille & Cutshall (1986).

In the field of biological rhythms many textbooks still state that sloths sleep for 19 hours a day, a figure stated many years ago for sloths living in captivity. It took the invention of wireless sensor devices for Rattenborg et al (6) to show that sloths in the South American jungle slept an average of just over 9 hours, which could be predicted from their position in the predator-prey hierarchy.

This does not mean that lab studies in general are lacking in external validity! If you are going to use that criticism always state WHY with a relevant example.

This seems to establish a rule that newer research is more likely to be valid, and to some degree that's true for replications. However some 'replications' (such as Haslam and Reicher's (2001) partial replication of Zimbardo's prison study) are significantly different and create considerable controversy about their relevance and implications for the validity and reliability of the

earlier study. On the other hand Milgram's work on obedience has stood up well to extensive replication (7) and indeed can be graphically emphasised using modern methods (e.g. the French 'game show' replication https://www.youtube.com/watch?feature=player_detailpage&v=aqZEDnykP4s) (8)

You may reach this point and wonder what you can trust. Unfortunately, the urgency of publication and the restrictions on material for new A-level textbooks results, quite often, in previous material being copy and pasted without research to validate or update it. Authors do their best under what are quite trying circumstances. You also have the problem that many online study resources are in fact simplistic digests of old material. So if you want to know the current state of affairs, you could try Wikipedia (usually reasonably accurate and up-to-date) or my preference, the British Psychological Society Bulletin (which has many good summaries and is searchable (<https://digest.bps.org.uk>)).

The nice thing about searching is that you often find the most wonderful information that you weren't looking for!

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*Written by Verity McCoy,
Year 12 student from St Edwards College, Liverpool*

INTRODUCTION

AIM: To see if there are gender differences in healthy food choices judged by the amount of females and males who did and did not choose salad with their lunch.

NULL HYPOTHESIS: There will be no difference in the amount of males and females who choose salad as a healthy food choice.

ALTERNATIVE (EXPERIMENTAL HYPOTHESIS): More females will choose salad as a healthy food choice compared with males.

WHY THIS HYPOTHESIS HAS BEEN SELECTED: The Department of Public Health, University College London (2004) investigated gender differences in health behaviours. They examined food choice behaviours in a large sample of young adults from 23 countries. They discovered that women were more likely than men to report eating fruit and limiting salt in almost all of the

23 countries. Women also attached greater importance to healthy eating. As well as this study, healthy eating is a gendered behaviour that we found to be common amongst our peers also so with this factor and established research suggesting that women are more likely to eat healthily, we chose a directional hypothesis.

VARIABLES: We operationalised gender by using males and females and operationalised food choices by stating salad as a healthy food option.

METHODOLOGY:

METHOD: We chose a non-participant observation method as we wanted the results to be realistic food choices. We conducted the research in a school dining hall so that it was in a natural environment.

SAMPLE: We used 11-14 year old pupils and used teachers as the sample group in our research.

PROCEDURE:**SAMPLING TECHNIQUES**

Participant sampling technique: Opportunity sampling was used to select pupils and staff. The participants chosen were the ones who were on lunch at this time and were on the 'hot food side' of the dining hall.

Evaluation of participant sampling technique: this was the best way to investigate natural food choices however; we would not get an honest insight into the reasons for the salad choice.

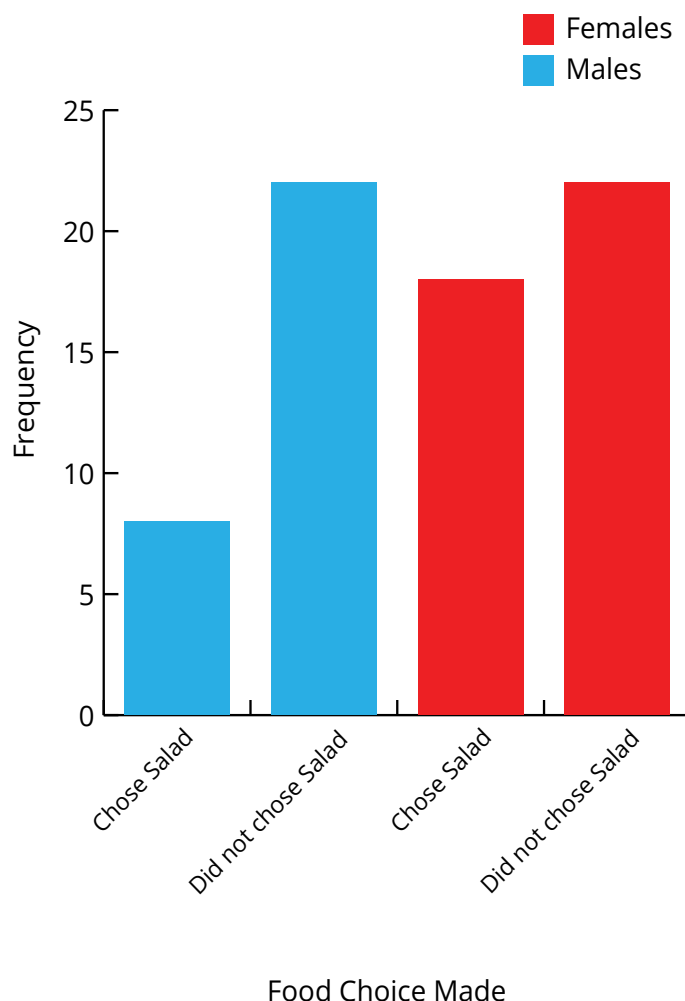
Observational sampling technique: Event sampling was also used because the researchers created a table to record the behaviours they observed (males and females who didn't chose salad). Then they recorded the amount of times each gender made the food choice as each food choice was made.

Evaluation of event sampling technique: Event sampling was used because it was the best observational method due to the researchers recording a tally every time a male or female chose salad. This method is high in ecological validity because food choice was happening in a natural setting (college dining hall at lunch time) and the way that researchers positioned themselves meant that it was highly unlikely that they missed any salad choice from the males and females being observed. With there being only one observation happening at that time it is highly likely that the researchers were able to record every food choice behaviour from the 70 participants. This was better than time sampling (where observers watch for a set time and then record behaviour) because the researchers may have forgotten male and female food choice by the time they recorded the information.

PROCEDURE: A Year 13 class decided to investigate healthy food choices. They decided that salad was the healthy food variable they were going to observe. Four Year 13 pupils volunteered to complete the observation. The researchers created a tally chart. The columns used were males and females and the rows were 'Chose salad' or 'Did not choose' salad. The researchers went to the dining hall from 12:20pm to 12:45pm and tallied each time 70 males and females did or didn't choose salad using pen, paper and the results table they had created. They came back with the results and shared them with the class.

FINDINGS:**RESULTS TABLE:**

	Males	Females
Chose Salad	8	18
Did not choose salad	22	22

**VISUAL REPRESENTATION:**

Bar chart to show number of males and females who made healthy food choices.

DESCRIPTIVE STATISTICS: As data was nominal only the mode can be calculated. 8 males chose salad and 18 females chose salad.

INFERENTIAL STATISTICS: The level of measurement of our data was nominal because categorical data was used ('chose salad' or 'didn't choose salad'). Our experimental design was independent measures because we used two separate groups who were males and females, therefore a Chi Squared inferential statistical test was chosen. Additionally this was a test of difference not relationship.

STATISTICAL SIGNIFICANCE: Our observed value of 2.38 was lower than the critical value of 2.71 for a one-tailed hypothesis where the degrees of freedom was one. The observed value for Chi Squared should be equal to or above the critical value to be significant, therefore we had to accept our null hypothesis and reject our alternative hypothesis.

CONCLUSION

It was concluded that there was no significant difference between male and female food choice when it came to choosing salad or not choosing salad. Although there were small differences these were not significant enough to accept our alternative hypothesis so we concluded that there is no gender difference in food choice.

EVALUATION (DISCUSSION):

Reliability: Inter-rater reliability – Four researchers observed the behaviour of males and females who did or did not choose salad. This led to a high level of reliability because each researcher recorded food choice, compared their results with the other researchers and they all had the same data. This ensured consistency and accurate results.

One issue of reliability was that age was not kept consistent. Even though age was not under investigation, not keeping it consistent could have affected the results in that different ages may make different food choices for different reasons.

Validity: This observation was high in ecological validity because it took place in the school dining hall at lunch time so the males and females being observed were making natural food choices without any influence from the observers. This means that the findings from our investigation can be generalised to real world food choices in males and females.

However the internal validity of the research was weak because the observers had no idea as to why each male or female decide why or why not to choose salad. It may not have been gender that affected food choice but some other factor e.g. food allergies or dietary requirements. In order to increase internal validity the researchers could have asked each male and female why they made the food choices they did and if there were any reasons why they did or did not choose salad.

Ethical Issues:

- As one of the problems with the research is that we were unaware of why the food choices were made, participants should be asked why they made these choices so that we were able to identify whether gender was the contributing factor to food choices or whether another variable caused this. This would also have allowed participants the right to withdraw their results.

- Privacy – As participants were not aware they were being observed and their data recorded, their privacy was invaded. However as the research was conducted in a public place, participants should have been expected to be watched by people to some degree. Therefore privacy is not something which is a major ethical issue.
- Valid consent – the true aim of the observation was never disclosed to participants so they could not give consent for their results to be used within the research. Due to this they were also not given the right to withdraw their results from the research if they were unhappy with them being used which is against the ethical code of conduct. However, the fact that we did not question participants means that confidentiality was not an issue because we did not have any personal information and we did not video our participants food choices.

FUTURE IMPROVEMENTS

Age: Participants used in the sample were from a number of age groups. Therefore age can be considered a confounding variable as it is possible that food choice were related to age a not gender. For example the majority of those who chose salad were members of staff and not pupils, demonstrating that age was more of a contributing factor to the results than gender. In a repeat of the investigation, age should be kept consistent in order to investigate the effect of gender on food choices and not the effect of age and food choices.

Consent: As valid consent was an ethical issue within the research, participants should be approached at the end of the observation and be debriefed of the research. This will allow them to give consent or have the right to withdraw which will reduce the ethical issues of the research. Additionally, this would also reduce any anxiety or paranoia caused by participants being watched which again increases the validity.

Days of research: The research should have been carried out for a greater length of time over a number of days in order to get a more representative sample to collect results from. There may have been a number of reasons why on a particular day someone did not chose salad – for example if they had to stay behind for sport after school so wanted something more substantial. If the research have had been carried out over a number of days these situational variables would've been accounted for and balance out giving more accurate results.

IMPORTANT DATES

GCE Psychology Centres in Wales Only

Monday 14 May P.M.	Summer 2018 Series Psychology Unit 1 2290U10-1 examination (Wales Only)
Thursday 17 May P.M.	Summer 2018 Series Psychology Unit 2 2290U20-1 examination (Wales Only)
Monday 4 June P.M.	Summer 2018 Series Psychology Unit 3 1290U30-1 examination (Wales Only)
Friday 8 June A.M.	Summer 2018 Series Psychology Unit 4 1290U40-1 examination (Wales Only)

Eduqas AS Psychology Centres in England Only

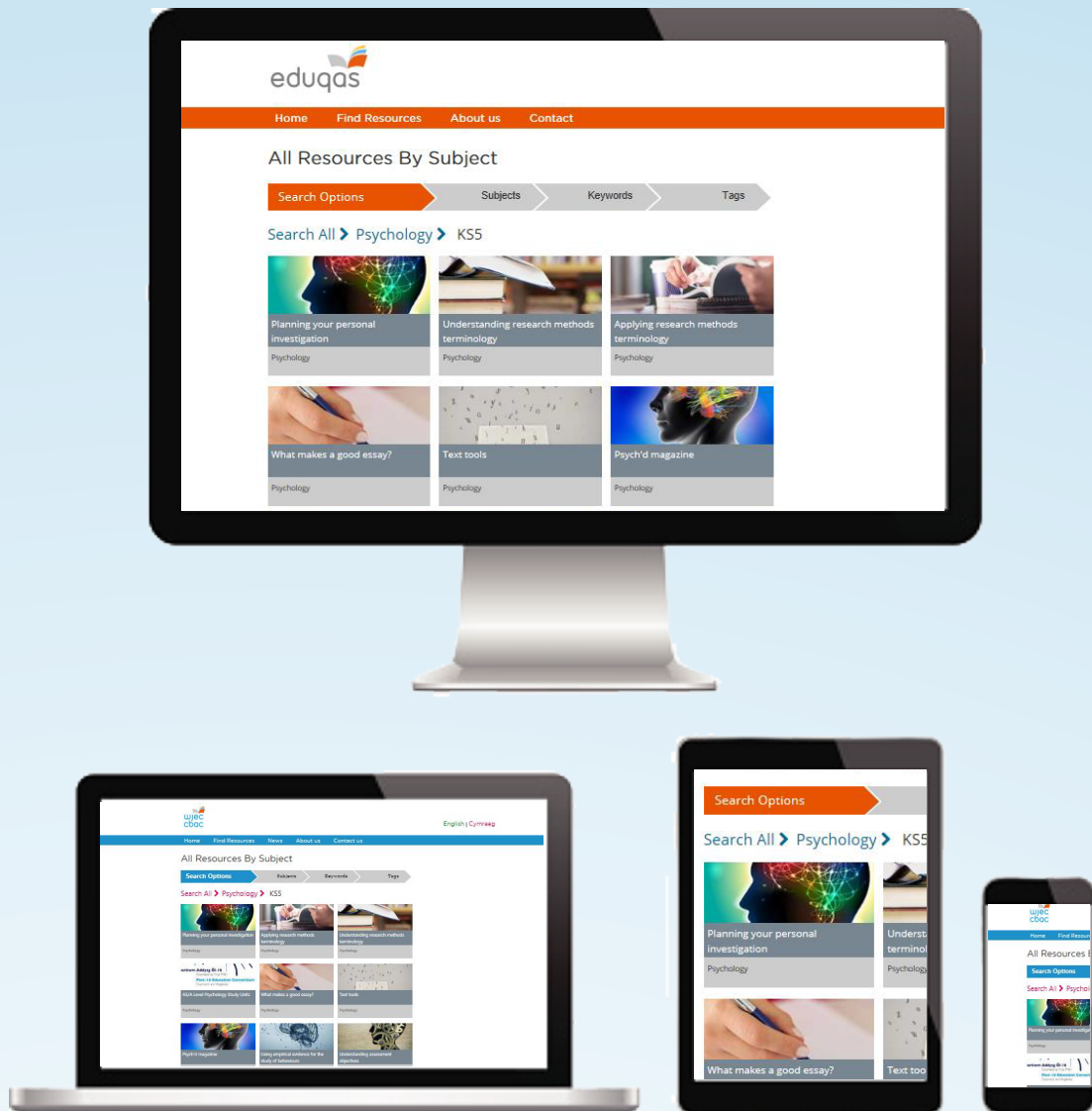
Monday 14 May P.M.	Summer 2018 Series Psychology Component 1 B290U10-1 examination (England Only)
Thursday 17 May P.M.	Summer 2018 Series Psychology Component 2 B290U20-1 examination (England Only)

Eduqas A Level Psychology Centres in England Only

Monday 4 June P.M.	Summer 2018 Series Psychology Component 1 A290U10-1 examination (England Only)
Friday 8 June A.M.	Summer 2018 Series Psychology Component 2 A290U20-1 examination (England Only)
Thursday 14 June A.M.	Summer 2018 Series Psychology Component 2 A290U30-1 examination (England Only)

WJEC and Eduqas Psychology Resources Webpage

The links below are to the new WJEC and the Eduqas GCE Psychology Digital Resources webpages where we have resources on the following:



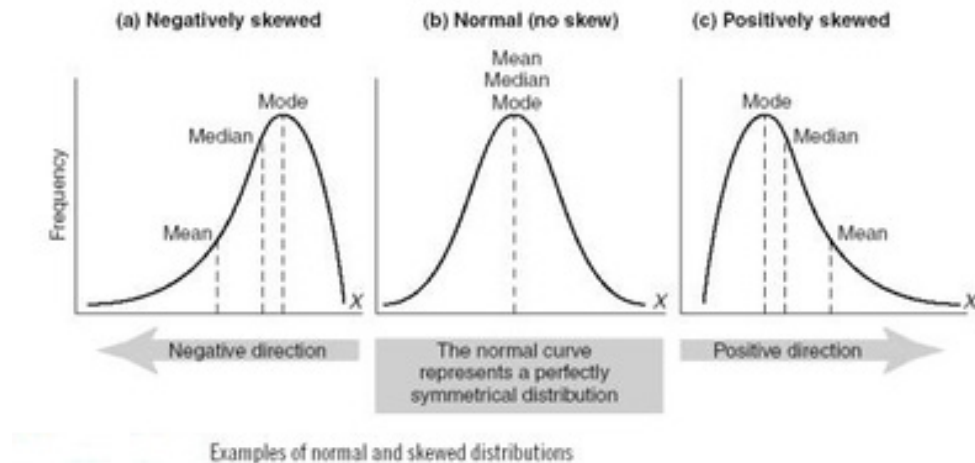
<http://resources.eduqas.co.uk>
<http://resources.wjec.co.uk>

Skewed Distributions

By Heather Miller from Benenden School

1. Stand with your feet slightly apart on an A3 piece of paper (ideally not wearing shoes).
2. Draw (or get someone else to draw) around your feet.
3. Now draw the axis. On the left foot draw the y axis a little way from the left side of the foot. On the right foot, draw the y axis directly to left of the foot. Add the x axis under each foot.
4. To draw the curve, on the left foot start at the bottom of the y axis and arch over the foot. For the right foot, start at the top of the y axis and curve down to the x axis.
5. Now add your Mean, Median and Mode to each foot:
Draw a horizontal line from the curve to the x axis on the Left Foot and Right Foot according to the following:
 - a. Mode – most – *big toe*
 - b. Median – middle – *middle toe*
 - c. Mean – ‘stingy’ – *little toe*
6. Finally label each graph (follow the alphabetical rule *L/R* and *Negative/Positive*)
 - a. Left –Negative
 - b. Right – Positive





Questions

1. Researchers studying stress used a questionnaire to rate participants on the daily hassles they had experienced in the previous week. The mean daily hassles score was 65, the median daily hassles score was 67 and the mode daily hassles score was 78.
Sketch a graph to show the likely distribution curve for the scores in this study.
2. 200 participants filled in a questionnaire used to find aggression ratings. The mean aggression score was 29, the median aggression score was 20 and the mode aggression score was 19.
Sketch a graph to show the likely distribution curve for the scores in this study. What type of distribution is shown by the graph?
3. Participants in a memory study were tested on their recall of a list of 15 words. The mean number of words recalled was 10, the median was 11 and the mode was 13.
What type of distribution does this data have?
4. Anna is studying the relationship between IQ and gender roles. She gives 25 participants an IQ test. The participants' scores are normally distributed. Sketch a distribution curve of Anna's results.

1. Negative skewed
2. Positive skewed
3. Negative skewed
4. Normal distribution

An Insight into the Potential Issues of a Personal Investigation



"By failing to prepare you're simply preparing to fail"

By Christopher Condliff and Molly Parker from St Edwards College, Liverpool

Our Personal Investigation

The saying goes that by failing to prepare, you're simply preparing to fail.

The wisdom of this old mantra rang true as we carried out our personal investigation, and lessons were learnt that we would like to pass onto others, highlighting the importance of planning by sharing our own experience with other students.

Background

Our task was to independently conduct our personal investigation into 'the effects of context on perception'. Essentially, investigating whether or not it was possible to influence how someone understands something (an object, image or even an idea) by intentionally manipulating the circumstances (context) the object/idea is observed under.

Our investigation finally took off after encountering some issues. In the end, we used two advertisement videos accompanied by five questions. Participants viewed one of two advertisement videos, one emotionally 'positive', the other 'negative'. Both related to the subject of war. Participants then answered five accompanying questions. The third of the five questions was a 'word illusion', a piece of artwork simultaneously displaying both the opposing words of 'Love' and 'Hate'.



We believed that participants who viewed the negative advert would naturally perceive the negative word, 'Hate'. Likewise, those who saw the positive advert would see 'Love' in the illusion.

The answers given in response to the other four questions were not used in our results, we informed our participants that we were conducting an investigation into attitudes towards war, so as to avoid demand characteristics by participants realising our true aims. (so, those 4 questions served as a means of making the

investigation into war look genuine/realistic).

Now that you know what we ended up with, allow us to explain the issues we encountered along the way, which were admittedly numerous but importantly allowed us to gain valuable insight into what not to do.

What on Earth were we thinking?

The very first issue we encountered was deciding upon our hypothesis, in light of the fact we had no idea what to do with regards to our methodology. This problem actually set us behind the rest of our class somewhat significantly – although we did manage to catch up. Ultimately, we're stressing deeply that no investigation, no matter how much you think you can "wing it" or figure it out later, should be carried out until you clearly know what it is you are actually doing. - the entire investigation will fall apart like a game of Jenga.

Your ethical considerations, checked by our teacher evaluations and findings all rest upon how you actually carry out the study. So, take some time, perhaps using a notepad to draw up a few ideas, and then develop your seemingly most effective one before actually beginning your investigation. We learned this the hard way so you shouldn't have to!

Illusion Issues

Another issue we encountered was related to our 'word illusion'. Word illusions were not hard to find, there are loads of them on Google Images but many have been seen before. Our eventual word illusion was a piece of artwork that ambiguously read both as the words 'love' and 'hate'.

However, the decision to use the love/hate illusion was not made with haste. Similarly, to our point concerning deciding on a method before your methodology, we had no idea what sort of perception we wanted to test. Clearly, the love/hate illusion can be argued to be an illusion based on emotional perception, yet other illusions pertaining to different factors related to perception exist.

For instance, many word illusions or popular illusions in general depend upon a person's own cognitive function and life experience, not just a person's emotional state/mood.

(Fun Fact: the science of illusions states that our brain is susceptible to illusionary deception and trickery thanks to an evolutionary survival instinct – the brain will often take 'shortcuts' with regards to information

taken in through light, so as to help early humans survive encounters with fast predators) .

Eventually, the love/hate illusion was chosen after sifting through bizarre illusions that didn't even work. Like your methodology, your variables (what the participants perceived in our illusion was our dependent variable) must be decided and kept in mind before actively carrying out any investigation.

Simplicity is key- don't use too many variables!

In this investigation, using too many variables or over complicating the aims of your study can be detrimental. This is because of a number of variables, whilst informative, can also be exhaustive. An example of this would be the fact that over complicating your investigation with too many variables may obscure the significance of any variables that actually do have an effect on the outcome. These variables vary systematically with your independent variable, and are known as Confounding Variables. These variables, can confound our results, meaning, in our case, if we used too many variables (simply aside from our independent and dependent variables) we would not be able to effectively make any sound conclusions. Keep it simple and conclusive results can be achieved.

Context

The aim of our investigation was to investigate the effect of context on an individual's perception. So, naturally, deciding upon the context to influence our participant's perception was rather important. This was far easier than deciding upon our hypothesis and illusion.

Our decision was to use War-related adverts and was purely based on the nature of our illusion. Part of our hypothesis assumed that, as our illusion contained love and hate, extreme emotional polar opposites, only context that somehow invoked these emotions would suitably complement our study. We then thought about what in the world could cause extreme emotions for anyone, regardless of personal circumstances. We decided that the idea of war, with its harrowing effects was subsequently incorporated, as it was bound to provoke some sort of reaction.

Deciding upon your context should be a piece of cake, many of our peers with similar ideas, including using a 'Good/Evil' illusion used a horror film trailer in an attempt to invoke the negative reaction of perceiving 'Evil', and a positive Romantic Comedy trailer as a means of invoking the perception of 'good'. If your aims, hypothesis and methodology are firmly in place, everything else should follow smoothly. Remember, proper preparation prevents poor performance!

Ethics

Of course, as the British Psychological Association tells us, ethical concern must be top priority and paramount, and in any investigation, we have an obligation to be mindful of the need for protection of the public; achieved in part by expressing clear ethical principles, values and standards. Clearly, we should apply this to all of our

investigations.

So, in our case, we countered 4 of the main ethical issues of psychological study; confidentiality, deception, protection from harm and the right to withdraw. Said issues were successfully and methodically dealt with. In the case of confidentiality, participants may not want their results to be shared, especially if their name is present. With our investigation, participants may not have wanted their results shared as our investigation relates to perceptions of war/politics and are possibly indicative of their mood or personality – which may be embarrassing. Thus, we simply kept our participant's information confidential, only using their results without asking for names or private data.

With regards to the 'protection from harm' principle, we did not believe our investigation was particularly harmful, although the images of war in our advertisements may have been distressing to some. Or perhaps, the sighting of the word 'hate' in our illusion may have also caused some distress, to reduce distress we told each participant that the illusion they saw, (if negative – 'hate') was not a reflection of their overall mood or personality. It was just a simple illusion test that really relied on the effects of context on perception.

Likewise, we informed them the images of war they saw were specifically edited intentionally to produce emotional reactions, (whether positive or negative) for the sake of an advertisement.

Due to this potential distress participants were given the right to withdraw at any point before or during the study, this was made clear in our standardized instructions.

We deceived our participants, informing them that we were studying perceptions of war, when we were actually investigating the effects of context of perception. This was necessary so as to avoid demand characteristics participants were debriefed on the true nature of the experiment.

Sampling Issues – Better the devil you don't know.

Obtaining your sample should be one of the easiest steps you can complete in your Personal Investigation, however it shouldn't be overlooked. In all likelihood your first instinct will simply be to sample your friends in your year group - big mistake. Your friends, as nice as they are, will not be truly representative of the populations you want to investigate. Not because they're not people, it's because as your friends/peers, they're far more likely to muddy the waters of your investigation by displaying demand characteristics. They're going to intentionally mess with your recording of results by giving you fake or joke answers that aren't going to be valid or useful for your investigation (this is known as Maslow's 'screw you' effect). We recommend you use complete strangers, or maybe teachers, people you work with for your participants, try to use people who won't be aware of you taking Psychology, therefore their answers/reactions to whatever your investigating should be more reliable.

Other Student Examples

My Personal Investigation – Hannah Clarke

In order to investigate the effect of context on an individual's perception, I chose to show my friends and family (who do not study psychology) a range of dresses, telling them that I needed their opinion on what dress to wear for a party. In fact, I showed one group of people a selection of blue and black dresses, and another group a selection of white and gold dresses. I then showed them the famous image of 'The Dress' (shown below) and asked them what colours they saw it as.

TOP TIP: Before carrying out the investigation, ensure that the research you want to do can be measured with an appropriate statistical test, otherwise there is no way to see if your results are valid or not!



Our Personal Investigation- Dylan Fox-Ford, Connor O'Reilly and Callum Turner

In my investigation I used 10 images of places such as mountains and buildings which had green tints to them, I also had these same images but they had a red tint to them. I used the colours red and green to see if people would rate the green images to be more positive in appearance on a rating scale than the red images, or to see if there was no difference at all. I showed the green images to 15 participants and the red images to 15 different participants, in the study only 16-17 year old boys were used. This was to allow the study to be androcentric thus adds more reliability to the study; I also used only boys in the study because they would act in similar ways, women may react differently as there is a difference between the genders and thus may reduce the reliability of the results gathered if both genders were used.

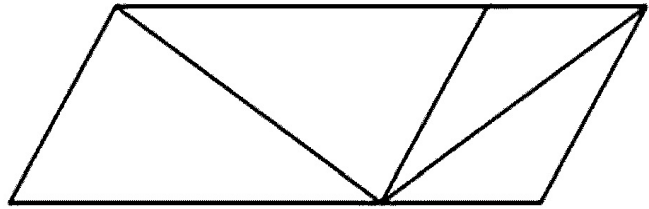
One tip for planning the investigation is to consider any ethical issues that may occur in the study, my study realised that some participants may be colour blind. In order to avoid this being an issue I asked all participants prior to asking them to complete the study if they were colour blind. If they had been colour blind they would not have been able to take part in the study and cause embarrassment and consequently psychological damage.

My Personal Investigation - Jessica Bird

To investigate perception in context, I asked my participants, both male and female teachers at my college to complete an optical illusions test, scored out of ten. I approached my participants in the staff room during a lunch break and asked them to complete the test, only stating their gender to ensure confidentiality and thus reduce psychological harm by embarrassment.

For example,
Circle one of the options below that best describes the diagonal line in the following illusion?

- a) Bigger
- b) Smaller
- c) Same size

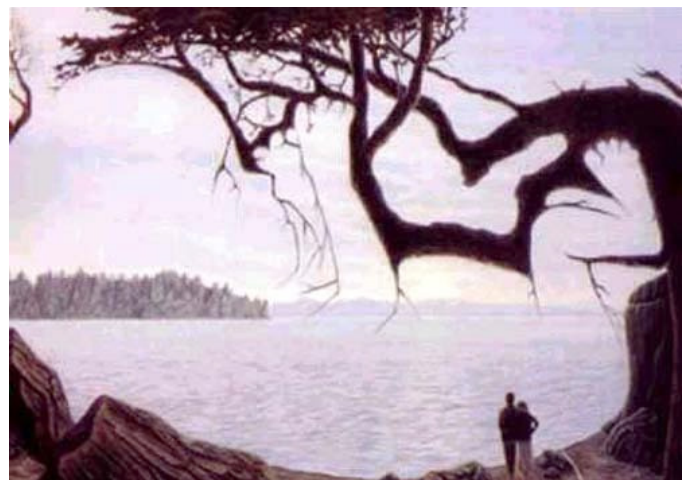


TOP TIP: When writing your investigation, e.g. any tests produced, ensure that all information given to participants is clear and concise to avoid confusion and thus confounding results.

Our Personal Investigation- Jemi Lee and Tolu Oluwabiyi

We were investigating the effect context had on an individual's perception. We presented 1 group with a memory test of 5 facts about heterosexual couples and the 2nd group with a memory test of 5 facts about babies to see if it had an effect on their perception of the illusion shown to them at the end of the test.

Top Tip: If you're working in a group, make sure you all share your resources with one another. Otherwise, when you separate and try to come back to your work, you will not know what to do.



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