

ECPS6001: Psychology Empirical Project Research Proposal

Assessment Component 1: Research proposal (1,000 words) worth 10% of the overall module mark for the Psychology Empirical Project. The proposal form will be marked in line with the Level Six Grading Rubric. The boxes below will expand as you type.

Student Name and University ID number:	AN Other
Proposed Supervisor's name:	

Good title =
defines topic
area, design,
and population
of interest

Suggested Research Title/Area: (between 10-15 words and must reflect the essence of your proposed research question, study design and study population and should be more specific than a broad topic area).

The impact of pain on attentional bias in undergraduate students: an investigation using the dot-probe paradigm.

Please state the aim and rationale of your study:

To explore whether chronic pain influences attention to pain related information, either by biasing those with chronic pain towards pain-related information (due to that information capturing their attention), or away from it due to inhibitory mechanisms enforcing a protective avoidance element (Haggman et al., 2010). Thus, the rationale is to establish the direction of any potential attentional bias effects.

Clearly stated
brief aims and
rationale

Please state the main research question(s):

1. Are those who experience chronic pain attentionally biased towards pain-related stimuli compared to controls?
2. If so, what is the direction of any attentional bias?
3. Does the intensity of chronic pain influence levels of attentional bias?

Clear and
comprehensive
research
questions

Please state the hypothesis/hypotheses (if appropriate):

1. Individuals who experience chronic pain will display an attentional bias to pain related stimuli compared to controls.
2. The direction any attentional bias is displayed may either be towards or away from pain related stimuli.
3. Those with high intensity chronic pain will elicit greater attentional bias than those reporting low intensity chronic pain.

Clear and
comprehensive
hypotheses
specifically related
to each research
question

Well written, and clear mini-review with coherent sentences and citations to support arguments. Links to theory and empirical research

Correct formatting of APA reference list included

What theory and empirical research evidence supports your research question? (Please provide a brief review of relevant psychological literature and theory and a minimum of eight references).

Extensive research regarding attentional dispositions of individuals in relation to how they process pain-related information has been previously examined (e.g., Asmundson et al., 1997; Bar-Haim et al., 2007; Dehghani et al., 2004; and Schoth et al., 2012). However, to provide further context, one must understand the meaning of what is referred to as 'attention' itself and how it relates to those with chronic pain.

Attention is a process of how the importance of stimuli is determined by the inner mechanisms of the individual's mind and is filtered as such (Kahneman, 1973). Shinn-Cunningham (2008) suggests the process of attention entails the interaction between two key components, perceptual objects and selective attention. This is to suggest that the individual differences in selective attention, such as biases to attention, interact with the individual's ability to perceive various objects or stimuli. As such, Shinn-Cunningham (2008) suggests that the interaction between individual differences in attentional bias and the individual's ability to visually perceive stimuli influences their process of attention.

In order to further understand these processes, participants who experience chronic pain will be targeted to take part. A theoretical link between these variables was established by Pincus and Morley (2001), who suggest a model as to how attentional bias and chronic pain may be linked as the result of three factors - an overlap between three different schemas, these being the self, pain and illness. The model then proposes that the attentional bias present is dependent upon the extent to which the pain schema is integrated (Pincus & Morley, 2001). The model operates under the assumption that those who experience pain on a frequent basis i.e. chronic pain, are to possess attentional bias towards pain-related information (Pincus & Morley, 2001). This demonstrates a model which examines attentional biases in those with chronic pain and serves to provide an explanation as to why these biases occur.

Reference List: (Not included in word count)

- Asmundson, G.J., Kuperos, J.L., & Norton, G.R. (1997). Do patients with chronic pain selectively attend to pain-related information?: preliminary evidence for the mediating role of fear. *Pain*. 72(1-2), 27-32.
- Balota, D.A., Marsh, E., & Marsh, E.J. (2004). *Cognitive psychology: Key Readings*. Psychology Press.
- Bar-Haim, Y., Lamy, D., Pergamin, L., Bakermans-Kranenburg, M.J., & Van Ijzendoorn, M.H. (2007). Threat-related attentional bias in anxious and non-anxious individuals: a meta-analytic study. *Psychological Bulletin*. 133(1), 1.
- Dehghani, M., Sharpe, L., & Nicholas, M. K. (2004). Modification of attentional biases in chronic pain patients: a preliminary study. *European Journal of Pain*, 8(6), 585-594.
- Kahneman, D. (1973). *Attention and effort* (Vol. 1063, pp. 218-226). Englewood Cliffs, NJ: Prentice-Hall.
- Pincus, T., & Morley, S. (2001). Cognitive-processing bias in chronic pain: a review and integration. *Psychological bulletin*, 127(5), 599.
- Posner, M. I., & Petersen, S. E. (1990). The attention system of the human brain. *Annual review of neuroscience*, 13(1), 25-42.
- Schoth, D. E., Nunes, V. D., & Lioffi, C. (2012). Attentional bias towards pain-related information in chronic pain; a meta-analysis of visual-probe investigations. *Clinical psychology review*, 32(1), 13-25.
- Shinn-Cunningham, B. G. (2008). Object-based auditory and visual attention. *Trends in cognitive sciences*, 12(5), 182-186.

Methodological Details

Clearly states
target
population

Justifies
target
population
and
groupings

Provides
justification
for sample
size, linked
to analysis

Please describe the intended participant group – including anticipated numbers, target population, and any specific inclusion/exclusion criteria:

Participants will include undergraduate students over the age of 18 at UWTSD studying a Psychology related course. They will sign up using the department's Experimental Management System (EMS) in exchange for course credit. They will be informed that participation is entirely voluntary. There is no specific inclusion or exclusion criteria.

The study will target two participant groups, those who report experiencing chronic pain and those who do not.

As the study involves a 2x2 mixed experimental design, the power behind each group will need to be taken into account. This will require approximately 100 participants, with 50 participants for each research group. This is contrasted with similar studies by Yang et al. (2013) where 48 participants were gathered, and Kuperos and Norton (1997) where 41 participants were gathered. This presents low sample sizes and as such, the samples of this study will be larger by comparison to ensure the power behind the data is robust.

Please describe the anticipated design (e.g., Qualitative/quantitative, between/within-subjects, mixed design, regression, focus groups, interviews, experimental, questionnaire, etc.):

The study will involve a 2x2 quantitative mixed experimental design. Completion of the Graded Chronic Pain Scale (Von Korff et al., 1992) (please see below) will place participants in one of the two groups ("pain" or "healthy"), as well as severity levels for those experiencing chronic pain. The experiment itself will consist of participants completing the dot-probe paradigm task.

If relevant, include details of the...

- **IV(S) and number of levels:**
- The first independent variable will be participant group, with two levels, 'healthy' and 'pain', this being the between-subjects variable.
- The second independent variable will be word types with two levels, 'pain-related' and 'neutral', exposed to both groups. This will be the within-subjects variable.
- **DV(s):**
- The dependent variable will be response time (in milliseconds) and accuracy of seeing the dot after exposure to the word-pair stimuli.

Full, clear, and
specific
explanation of the
design and tasks
involved, with
justification

Describes both IVs
and explains how
many levels there are
with each, and what
those levels are
(including which is
the between & which
is the within).
Clearly describes the
DV

Explains each
measure/
material, with
appropriate
citations

What materials/measures are you planning to use for data collection? (E.g., questionnaires, tests/tasks, interview schedules, auditory/visual stimuli, computer programme, etc. Be as detailed as possible here - what specific topics/measures/scales/instruments will you be using and what will you do with this data?)

The Graded Chronic Pain Scale (Von Korff et al., 1992) is a seven-item scale that asks participants whether they experience chronic pain and if so, to rate the severity of their experience. This will allow participants to be categorised into the two aforementioned groups.

The dot-probe paradigm (Halkiopoulos, 1981) require participants to respond to a dot that appears above one of two words presented in different locations on the screen. One word on the left and one on the right, with one being a pain-related and the other being a neutral word. There will be 40 trials in total with words gathered from Haggmann et al's (2010) pain-related dot-probe study.

Please describe the study procedure (what will your participant have to do from start to finish? It should be clear from this how you are actually planning to carry out your study, and what will happen to participants):

Participants will complete the study in one of the Psychology Labs at UWTSD. They must first read an information sheet before completing the consent form. Then they will be asked to complete the Chronic Pain Scale questionnaire. They will then be required to complete the dot-probe paradigm task on the computer (Halkiopoulos, 1981). The participant will be required to press the 'A' key if the dot is on the left side of the screen and the 'L' key for the right side of the screen. Once all 40 trials have completed, the study will conclude and participants will be debriefed.

Clearly explains what happens to each participant and in what order

Clearly describes the data itself and how it will be prepared for analysis

Please describe the data you will obtain and how it will be analysed (e.g., test or questionnaire scores calculated as a mean and analysed quantitatively, recorded verbal reports analysed qualitatively, etc.):

The data will be response times (in milliseconds) and accuracy to seeing the dot after exposure to the 40 word pairs, a method in line with Halkiopoulos' (1981) dot-probe paradigm. The response time and total accuracy data will then be transferred into mean totals for each group in order to make comparisons.

If relevant, what statistical test will you use and how will your data be analysed through this test (e.g., two-way ANOVA, Multiple Regression, Chi Square, etc.):

Four 2x2 mixed ANOVAs will be conducted.

The first two will be based on the first two research questions (one on response time and one on accuracy data) to establish a main effect of responses between the two participant groups (chronic pain vs. control), and a main effect of responses to the word type variable (pain vs. neutral). An interaction effect will also be established. Furthermore, if there is a bias within the pain group, the direction of this (either towards or away from pain-related information) will be established.

The second two ANOVAs (one on response time and one on accuracy data) will be conducted to analyse the third research question to establish a main effect of responses between the two chronic pain participant groups (high vs. low intensity chronic pain), and a main effect of responses to the words (pain vs. neutral). An interaction effect will also be established.

If relevant, what qualitative analysis will be used (e.g., IPA, Thematic analysis, etc.):
NA

Clearly explains all aspects of the analysis plan, and in line with the research questions

Appendix (not included as part of the 1,000 words but must still be completed)

1. Attach any questionnaires/materials to the end of this proposal as an appendix.
2. Ethics: Describe the main ethical issues of your study and explain how you will address them here (Refer to the BPS ethical guidelines and address all issues not just informed consent. Please note all students will need to complete a full ethics form, which must be approved prior to any data collection commencing).

In accordance with the BPS code of human research ethics (2018) the following ethical considerations will be implemented: A consent form will be provided to participants to ensure they are able to provide informed written consent, and they fully understand what the study will require. Participants will be informed of their right to withdraw from the study at any time without penalty during the study if they so wished to do so. Participants will also be provided with a debrief form to inform them of the full purpose of the study, with contact details for both the researcher and the supervisor at the end of the study. The participant will also be informed of their opportunity to ask questions relating to the study. In addition to this, participants will be informed of their right to withdraw their data as they will not be able to do so once they have left the labs as the data will not be able to be traced back to them afterwards. The participant will also be informed that this opportunity will be their only one as once they leave the study, they will be unable to withdraw the data. The participant will be deceived to a certain extent during the task as they will not be aware of being categorised into different groups, this detail of categorisation will be revealed fully during the debrief. This disclosure of categorisation will be provided along with information about the concept of the study as well as offering the opportunity to ask questions at the end of the study or at a later time.

Refers to the BPS and clearly explains key ethical considerations – those generally related to conducting research, but also specific to the nature of the study

Ethical issues that may arise may include the possibility that a questionnaire requiring participants to state their type of chronic pain may be intrusive and may cause distress. As such, participants will be ensured that their data will be held strictly confidential and anonymously and will be informed of their ability to withdraw from the study at any time during the study, to mitigate this potential issue of discomfort. There may also be the possibility that their chronic pain becomes uncomfortable during the study. Because of this, it will prove highly important to ensure a balance is struck between a comfortable amount of time for the participant to complete the study and ensuring enough data is collected to conduct a robust analysis.