Psychology Applied Learning Scenarios (PALS)

A practical introduction to problem-based learning using vignettes for psychology lecturers

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The purpose of this pack

The rapid expansion of problem-based learning and its applications in many different disciplines across the world may sometimes appear a little daunting to those of us who teach psychology and would like to try out this method but are unsure where to start.

This pack is intended to be a practical resource to help that process. It is not making any great claims to be innovative or original. Instead, it is an account of how a psychology lecturer has used brief text-based vignettes or case study scenarios in her teaching and assessment of both undergraduate and postgraduate students. The aim has been to help her students apply their theoretical understandings in a way that is engaging, stimulates their curiosity and gives them more 'power' and efficacy in the learning situation.

Psychology Applied Learning Scenarios (PALS) are easy to use, adaptable and can promote effective learning either in a more traditionally-based course format or as an introduction to fully-fledged problem-based learning.

Introduction to
Psychology Applied Learning Scenarios (PALS)

What are they?

Psychology Applied Learning Scenarios (PALS) are an adaptation of problem-based learning using hypothetical case studies that represent situations which professional psychologists typically face. Scenarios or vignettes are not new in teaching but what PALS offers is a rationale for this type of learning.

The essential feature of PALS is that they are ambiguously phrased to allow students scope to develop their own thinking to the given problem. This is one of the crucial differences between problem-based learning where there is no single 'correct' answer and problem–solving learning where a 'solution' has to be found. By applying different theories to a PALS case study, students realise for themselves how different approaches to the issues raised are derived from the different theoretical perspective they adopt. This aids them in developing a critical approach to theory and a better understanding of the contingent nature of knowledge.

PALS are also designed to give students the opportunity to develop and practice skills such as critical thinking, evidence - based reasoning and decision making as well as those specified in the British Psychological Society's national occupational standards for applied psychology defined as methods, techniques and procedures needed to handle subject specific knowledge.

How did they evolve?

PALS have been used by the author for over ten years in a number of different psychology courses but they have undergone a programme of intensive development in a third year counselling psychology module. (A number of PALS vignettes are presented in Appendix A for colleagues who wish to adapts them for their own courses).

Teaching counselling psychology poses particular problems of application since students are untrained and unqualified and cannot, therefore, be allowed to practise on another person; nor should they be allowed to practise on each other. Some students who are attracted to courses such as counselling psychology, clinical psychology and abnormal psychology tend to be vulnerable, often with unresolved issues of their own that they may not be fully aware of. In this context, providing them with hypothetical vignettes is a reasonable substitute.

What is the pedagogical justification for using PALS?

Norton (paper under review) has argued that using PALS helps students to appreciate the contingent nature of knowledge and make what King and Kitchener (1994) refer to as reflective judgments. By this, they mean a form of advanced thinking, which reflects epistemic assumptions that our understandings of the world are not given but must be actively <u>constructed</u> by understanding knowledge in the context in which it was generated. King and Kitchener developed their 7 stage model of reflective judgment using ill-structured problem situations. They defined these as problems which have no easy or specific solution. Part of the thinking behind the use of PALS has been underpinned by this concept of reflective judgment.

There is much currently in the literature about the benefits and drawbacks of using a problem-based approach (For a list of further reading, see Appendix B.). A brief pedagogical justification for PBL comes from John Biggs who is currently advocating the importance of 'constructive alignment' by which he means setting up a learning environment where the activities of the students fit (or are aligned) with the intended learning outcomes.

He suggests that taking a problem-based approach is

> '…*a very good example of aligned teaching. In PBL, the aim is to produce graduates who can solve professional problems, the main teaching method is to get the students to solve professional problems, the assessment is judging how well they have solved them. There is alignment throughout.* (Biggs, 2002, p.1)

How can PALS be used?

PALS can be used in a number of psychology courses where application of theory is key.

Teaching

Class exercises
PALS can be used as a teaching aid in class to stimulate interaction between students and exploration of a difficult concept. For example, when introducing the Freudian concept of 'compulsion to repeat', a simple class exercise can be introduced by giving groups different PALS and asking them to see if they can detect the behaviour in their example. This then leads on to an in-depth discussion of the concept at class level.

Seminars
Students can be helped to think more actively about a topic by applying their given reading to a PALS rather than 'regurgitating' given readings in a stilted and often over-formal way which can make seminars dull and uninteresting for all who are taking part.

Course delivery
In counselling psychology, the author has developed this approach so the whole module builds on applying knowledge and understanding to PALS. Students put themselves into PALS teams very early on in the course, they choose a specific PALS case and they work on that case throughout the taught part of the module The course is structured around a two hour session each week divided into two smaller sessions lasting approximately 50 minutes with a break in between. The course is delivered using a variety of learning and teaching methods with a heavy emphasis on student participation. Typically there is a short formal lecture (on a theoretical therapeutic approach) with a class exercise in the first session, followed by a workshop or a group discussion of a PALS case study in the second session.

Assessment

Examinations
PALS can be used effectively in assessment in written examinations. A successful application in Counselling Psychology involved telling students that the examination would consist of four case studies and they would be asked to choose their own theory and apply it to two cases. In this way, students were encouraged to take a deep approach to the theory as they could select the theory they were particularly interested in and study it in detail rather than cramming their heads with facts, which often happens with unseen examinations.

Presentations including role play
PALS provide a useful way of engaging small teams of students in active information seeking and evaluation to justify a therapeutic approach and give an oral presentation on their research. Another example taken from a masters module on teaching and learning required students to role play a team of consultants called into a school to advise on a staff problem in a school. Students were asked to present a set of recommendations based on the theoretical framework of a systemic model of learning and teaching.

Essays

PALS can be used very effectively for assignments that require students to demonstrate understanding in an applied setting. They can also be used to ask students to take a more sophisticated critical approach and use their psychological understanding of research as in this example. 'Use your knowledge of *the appropriate research evidence* and discuss how effective your chosen theoretical approach(es) would be in determining what can be offered to the client described in the PALS case study'.

What is the best way to construct PALS?

There is an increasing availability of vignettes published on the Internet, often in medical education and clinically based courses, many of which might be helpful to the lecturer who has never used this type of material before.

Using these materials without adapting them in any way would, however, lose much of the benefit in lecturers constructing them themselves. The author is a keen advocate of pedagogical action research and has argued that one effective way of improving our students' learning is to capitalise on our abilities as psychology lecturers to research our own teaching and thereby modify our practice (Norton, 2001; Breslow, Drew, Healey, Matthews & Norton, in preparation).

The same argument applies to constructing PALS because it gives us, as lecturers, the opportunity to actively reflect on what we are trying to achieve in our courses. By constructing our own hypothetical case study, the learning objectives come into sharp focus and we may seek further knowledge by consulting relevant pedagogical literature. In other words, the principles of problem-based learning could be said to apply to us when we experiment with this form of teaching!

The following PALS case taken from Counselling Psychology is deconstructed to illustrate the pedagogical principles that the author was using. These principles have emerged over time from her own experience, but also on her knowledge of the literature on student learning. They bear a close resemblance to the work of Barter and Renold (1997) who use vignettes specifically in qualitative research and to Dolmans , Snellen-Balendong, Wolfhagen & van der Vouten's (1997) 7 principles which are derived from PBL in medical education:

Figure 1. Principles of case/vignette design from the literature applied to PALS

Adapted from Domans et al (1997) Principles of effective case design for a PBL curriculum	Adapted from Barter and Renold's (1997) use of vignettes in qualitative research	Pedagogical objective related to designing PALS
Prior knowledge: The contents of a case should adapt well to students' prior knowledge	Vignettes should appear plausible and real to engage participants	PALS should help students build on what they already know in psychology
Relevant content: Cases should be presented in a 'real world' context that links with students' future profession	Vignettes should focus on mundane rather than bizarre events or characters.	PALS should encourage as authentic a learning experience as possible which relates to the work of the professional psychologist
Self-directed learning: Cases should not be over-structured or direct students to tutor devised solutions	Vignettes should contain a balance of sufficient content for participants to understand the situation but be ambiguous enough to 'force' them to provide additional factors which influence their approach	PALS should facilitate self-directed and independent learning
Elaboration through discussion: Cases should be constructed with a sufficient number of cues to encourage students to search for explanations but not so many that energy is taken up separating relevant from irrelevant cues	Too many changes in a story line are confusing and make it difficult for participants to deal with.	PALS should enable students to meet the specified learning outcome of a particular PALS task
Interest in the subject matter: Cases should be sufficiently interesting to sustain discussion and further exploration of possible approaches to the situation described	Participants may engage more with the story if they have some related personal experience of the described situation	PALS should motivate students by stimulating their interest in the psychological aspects of the case.
Integration of knowledge: Presenting relevant subject based concepts in the applied context	No equivalent	PALS should enable students to understand basic psychological concepts
Teaching faculty objectives: Cases should be designed course to minimise gaps in the students' knowledge	No equivalent	PALS should be designed to complement objectives of psychology overall as well as those of the specific course being taught

Figure 2. An example of PALS: the case of 'Rachel'

Rachel is a very attractive woman in her mid thirties, who has come for counselling because although she is never without a boyfriend and frequently has more than one pursuing her, she finds that she cannot sustain a meaningful and lasting relationship with any of them. The men she gets involved with only seem to be after a sexual relationship and nothing else. Rachel always obliges but despises herself for sometimes sleeping with men she doesn't even like in a sometimes desperate search to be loved. This self-hatred got so strong a couple of years ago that she took an overdose, but was found in time and taken to hospital. The psychiatrist who saw her suggested that her inability to sustain love in others might be connected to the fact that as a child, she was severely deprived of love since her mother, a single parent, resented having to give up a promising career as an actress to look after her. Rachel does not accept this interpretation:

'I don't believe in psychiatrists, I'm not mad. I don't believe in all the rubbish about my mum, I don't need her. I just want someone to help me find out what I'm doing wrong, so that I can find someone nice and settle down.'

The task

This PALS was one of six given to a class of students taking counselling psychology. Part of the course requirement was that students would work in PALS teams to work on their case study. They were told that part of the assessment for this course was an oral presentation putting forward a *reasoned* case by each student team for a therapeutic approach to their chosen PALS case study.

Students were given the following information about the purpose of this PALS-led assignment in the module handbook:

'The purpose of this assignment is to enable you to find out *additional* information to tackle the issues in your chosen case study. This means your team will have to work out what you need to know in order to tackle the case, research it and apply your findings to the issues that you have selected from the case study. Each team presentation will therefore be very different, even if the same PALS case study is used; as teams will highlight different issues depending on which theoretical approach they decide to take. In doing the work for this presentation you will gain experience and be given feedback that will help you in tackling a more complex case study in your essay assignment later in the module. This presentation counts for 30% of your assessment for this module.'

Figure 3. **'Rachel' deconstructed illustratively**

Fact: She's voluntary

Counsellor might be making assumptions?

Problem presented: paradox - situation is different from how she views it

Client might be making assumptions?

Rachel

Client's self – evaluation: theoretical theme of

Identifiable theoretical themes: compulsion to repeat self – destructive behaviour

Rachel is a **very attractive woman in her mid thirties**, who has **come for counselling** because although she is **never without a boyfriend** and **frequently has more than one pursuing her, she finds that she cannot sustain a meaningful and lasting relationship with any of them**. **The men she gets involved with only seem to be after a sexual relationship and nothing else**. **Rachel always obliges** but **despises herself** for sometimes sleeping with men she doesn't even like in a sometimes **desperate search to be loved. This self-hatred got so strong a couple of years ago that she took an overdose, but was found in time and taken to hospital**. The psychiatrist who saw her suggested that **her inability to sustain love in others might be connected to the fact** that **as a child, she was severely deprived of love** since her mother, a single parent, resented having to give up a promising career as an actress to look after her. **Rachel does not accept this interpretation**: *I don't believe in psychiatrists, I'm not*

Fact: raises Professional ethical isues

Identifiable theoretical themes: resistance, denial etc

Counsellor's theoretical assumptions

Client's attitude and assumptions

Identifiable theme: family dysfunction

Identifiable theme: denial

Client's assumptions about counselling: she wants answers, not insight

Explanation of the pedagogical principles illustrated in Figure 3

As can be seen, the case study of Rachel has been deconstructed into six inter-related elements: facts, presenting problem, client's self-evaluation, counsellor's assumptions, client's assumptions and identifiable themes.

These will now be elaborated relating to the pedagogical objectives of PALS drawn from the principles of case and vignette design.

This is, of course, just an example of the type of issues and learning that the case study might stimulate. The nature of problem-based learning is that students should engage in their own independent learning, so each group will come up with very different responses.

It can be useful if students are unsure about how to tackle the PALS to suggest that as a first step they might like to break down a PALS case in this way. However, a caveat needs to be mentioned here. It is important to stress to students that since the object of this type of approach is to encourage them to be self-directed in their learning, this is only a suggestion to get them started. Students should be encouraged to generate their own ideas and understandings of the case, as soon as possible, rather than rely on the tutor for direction.

Facts about the client

Rachel has come for counselling, she sleeps with men she does not like, she has taken an overdose in the past, but she was found in time and taken to hospital.

These stark facts illustrate a number of PALS objectives:

<u>Meeting specified learning outcomes of the counselling psychology course</u> The fact that Rachel has come voluntarily raises issues about the nature of therapy, what it can offer and the implications of taking different approaches.

<u>Building on what students already know in Psychology:</u> Rachel's self-destructive behaviour would encourage students to reflect on what they have already learned in other psychology course such as self–esteem, as well as link to different theoretical interpretations from the counselling psychology literature.

<u>Authentic learning which links to the work of the professional counselling psychologist:</u> Rachel poses a real-world problem that students could readily see as linking to the work of a counselling psychologist. The fact that
she took an overdose might stimulate students to consider the 'risk' that Rachel might harm herself in the future and bring in a discussion of ethical issues related to counselling, a fundamental principle of being a professional counselling psychologist.

Problem presented

<u>Stimulating interest in the psychological aspects of the case:</u> Rachel is presenting a paradoxical problem – she has many boyfriends but cannot sustain a close stable relationship. Students may be encouraged to think behind the presenting problem to psychological explanations as to why this should be.

<u>Facilitating self-directed and independent learning</u>: There is a certain amount of ambiguity here to persuade students to search for additional factors and explanations for Rachel's problems

Client's self-evaluation

<u>Enabling students to understand basic psychological concepts</u>: Self- esteem, rejection and the need to be loved can encourage students to draw on their psychological knowledge of development and look at issues such as attachment and bonding etc.

Counsellor's assumptions

<u>Authentic learning which links to the work of the professional counselling psychologist:</u> By describing Rachel as very attractive, students may explore the difficulties of attempting to be non-judgmental, setting aside prejudices and one's own values which are promoted as essential attributes of the professional counselor.

<u>Complementing objectives of psychology overall and counselling psychology in particular</u>: The fact that the case study refers to another professional's interpretation could encourage a wider understanding of the contributions that psychology makes to understanding emotional distress. It also enables students to step back and look at how different theoretical approaches can determine what issues a therapist might 'see' in a client . This is one of the key learning objectives of the Counselling Psychology course.

Client's assumptions

<u>Authentic learning which links to the work of the professional counselling psychologist :</u> Rachel has been written to challenge students' understandings of what counselling is. By describing her as wanting an easy solution, students will be stimulated to consider a common problem that professional counsellors face.

<u>Self-directed and independent learning:</u> Rachel's assumptions about herself and about what counselling can offer will give students opportunities to discuss how they would interact with her and what part their own theoretical assumptions would play in this interaction.

Identifiable themes

The themes designed into Rachel's case study have for the purpose of this illustration been defined in terms of Freudian psychoanalytical theory – i.e. the concept of denial and resistance. Similarly, the detail about her mother might be picked up by students who were taking a theoretical approach which emphasised the importance past childhood experiences.

These particular themes have been construed to help students <u>build on what they know in psychology</u> and to <u>consider the fundamental objective of the counselling psychology course</u> which is not only to be able to apply a specific theoretical approach to a given case, but to understand how taking different approaches determines the issues that the counsellor will see and the therapy that will be offered. By doing this it is hoped that students will appreciate that a theory offers but one lens with which to view the client.

Using PALS as class exercises

One of the easiest ways to introduce students to a problem- or enquiry-based learning approach is to use PALS in class. Activities based round PALS can be as simple or as elaborate as lecturers wish, limited only by one's time, energy and imagination.

Below are examples of a simple and an elaborate PALS activity:

A simple class activity:

PALS exercise on empathy

Look at the following excerpts from our PALS case studies and as a team agree on a rating for each response:

> 3 = highly empathic
> 2 = quite empathic
> 1 = not very empathic
> 0 = not empathic at all

Then see if as a team you can think of a more empathic response than those given.

Mark

'I think I'm a loner and yet I don't like being on my own. Things just get too much for me and I have to move out. I'm the same with my work- I can't hold down a job- it just gets too much. I'm scared I'll end up on the streets or worse…'

Responses

a) You're scared and frightened of being a lonely old man; you can't hold onto your family or your work. You feel guilty about not looking after your children.

b) It seems as if you're all mixed up at the moment and can't understand what's going on in your life.

c) You think you're a solitary person because you always want to move on, but at the same time you're frightened of being left on your own

d) Your team's response…..

Ben

'I didn't want to come here but my parents made me… I'm worried that I am mental… but I'm scared to find out… I don't know what to do… I'm a bad person…'

Responses

a) You don't like counselors and think coming here is a waste of time

b) You're feeling like you're going mad, but you don't really want to find out.

c) Your parents make you do things you don't want to do which is confusing you and this makes you feel as if you are a bad person

d) Your team's response…

Anna

"I keep getting this pain in my chest, I can't think straight and I can't do my work. My mum was only forty-eight and I keep thinking what's the point of it all? I could be dead in twenty years - I need to live a little and then I think 'What about my dad?' I should be with him. I'm so confused about everything - I feel like running away from everything, but there's nowhere to run..."

Responses

a) You ought to get yourself checked out at the doctors to make sure it isn't a heart problem

b) You feel you're too young to be weighed down with pressures such as studying and looking after your dad.

c) You're feeling very frightened and want to run away but there's no escape.

d) Your team's response…

An elaborate class activity (Masters level)

The case of Dr Karen Klever

Task briefing

1. You are each members of a team who work for Dr Mowtif. Part of your job description is to teach on the Teaching in Higher Education course and the other part is to do research in teaching and learning in higher education.

2. Dr Mowtif is concerned about a new lecturer called Dr Klever who is an expert in her field but who students are complaining about, as she is authoritarian, unapproachable and delivering her course in a way that they cannot understand.

3. Accordingly Dr Mowtif sends you out to observe Dr Klever teach and to find one book or journal article that you think will help make Dr Klever more aware that she still has things to learn about being a teacher in higher education, even though she is very knowledgeable about the research.

4. It is very important that you take a sympathetic, encouraging and helpful approach to Dr Klever if you don't want to completely alienate her.

Task

1. Find a suitable piece of reading that will hopefully be of real use to Dr Klever and raise her awareness of her own performance as a teacher. Read it and make notes ready to report next week.

2. In our session next week, I will role play Dr Mowtif and you will be members of my keen and enthusiastic team! We will meet to have a departmental discussion as to what we can do to persuade Dr Klever to join our course, so we need to discuss the readings each of you have found, the results of your observations of her teaching and some recommendations based on your action plans for her.

Task materials: (1) Dr Klever's teaching proforma

University of
North West England

Observation of teaching: Planning proforma (completed by Dr Klever)

Tutor's name Dr Karen Klever   **Observer's name**

Module Psychology of Education   **Date** 7 April 2000

Overall aims of the session
- To give a lecture explaining how psychology has contributed to education
- To cover the main theories of educational psychology

Objectives/Learning outcomes
- By the end of the lecture students will understand cognitive theories, behaviourist theories and holistic theories of learning

Rationale for teaching and learning methods
- Students need to have a knowledge base before they can appreciate the view of learning as constructivism.
- Following the lecture there will be a tutorial where students will discuss some of the ideas raised in the lecture and have the opportunity to ask me anything they don't understand.

Learning resources
- The lecture will be given in a lecture theatre and OHTs will be used

Student participation
- I will ask students questions throughout the lecture to make sure they understand the key points.
- Students can ask me questions either at the end of the lecture (so as not to impede the main argument I'm putting forward) or in the tutorial session.

Assessment
- During the course of the lecture I will be assessing how well students understand what I'm saying by the answers they give to my questions.
- There will be an essay assignment on this lecture topic.

Task materials: (2) Briefing for observation of session by Dr Klever
(*This is a role play activity where I act as Karen Klever and give a really bad performance as a teacher where none of the aims or principles expounded in her planning proforma are in evidence.*

The students act as Dr Mowtif's team of observers)

University of
North West England

Observation of teaching
Evaluation and recommendations (to be completed by Dr Mowtif's team)

Strengths of observed session

Weaknesses of observed session

Recommendations for action plan to develop Dr Klever's teaching strategies.

Using PALS in seminars

Two examples are shown here. The first shows how a reading task can be enlivened by asking students to apply their readings to a case study.

Example 1: Seminar task on problem-solving skills

This is a little different from your previous seminars, but it should be no more difficult - in fact, it may even be fun!

As usual, each group will be given a specific reading (see below) but instead of giving a formal presentation of your understanding, I want you to relate your reading specifically to the "case study" that follows. How you do it is entirely up to you - some groups may want to improvise a small scene based on the case study, illustrating how some of the skills might be put into practice, others may prefer to give a straightforward presentation of their reading but use the case study as an example of how the skills could be applied. I'm sure whatever you decide, it will be excellent - I have great faith in you all!

Case study: "Jenny, the reluctant student"

Jenny is a student in her second year at college, doing a combined honours degree in Psychology and English. Jenny never wanted to come to college but was pressurised by her extremely domineering father, who is a professor of sociology at one of the new universities. Jenny is falling behind with all her studies, particularly her psychology coursework. She says it is because she keeps relating what she reads to her own life situation and problems. She also says that she finds it very difficult to make friends and although she is still in hall, she feels very isolated as most second years have found their own accommodation. Jenny goes to the student counsellor and asks her what she should do....

Seminar readings:

All the readings are taken from:
Munro, A. Manthei, B. & Small, J. (1989). Counselling: The skills of problem-solving. London: Routledge

Group 1 to read: The skills of goal setting (pp 64-69)
(direct questioning; dealing with discrepancies, setting goals, supporting and encouraging; interpretation;).

Group 2 to read: The skills of goal setting (pp 69-74)
(giving information; giving advice; influencing; giving directions; using personal examples; advising a delay; gaining commitment).

Group 3 to read: The skills of strategy selection (pp75-81)
(anticipating situations; providing models; role-playing; using rewards).

The second example is a much more elaborate seminar task used in a third year module on the psychology of education[1].

Example 2: 'Hope Park International Education Seminars'

Introduction

Each seminar will take the form of a role play in which you are asked to imagine that you are taking part in an exciting new venture by the College: a series of *"Hope Park International Education Seminars'.* The main aim of the series is to provide a forum for the presentation of high-quality original research that makes a significant contribution to our understanding of important educational issues.' each seminar in the series will focus on one issue only. The College hopes to be able to publish the papers in a set of edited Proceedings, but no paper would be published unless it was judged by the Hope Park Research Committee to be of a sufficiently high standard.

Participants

Each participant will play one of the following roles.
1.   A Researcher.
2.   A "Methodological Advisor".
3.   The Chair of the Hope Park Research Committee.
4.   General Members of the Hope Park Research Committee.

Normally, you can expect to play role 4 for two seminars and have a more "starring role" in the other seminar.

Structure of the seminars

Each seminar will take place in three "scenes":

Scene 1: Presentation of a paper
This scene will take no more than 10 minutes, and will largely consist of the Researcher giving a short presentation of the aims, methodology and findings of "his/her" empirical study, culminating with a brief answer, based on the research, to the question addressed by the seminar.

The presentation will be chaired by the Chair of the Hope Park Research Committee. The Methodological Advisor and the General Members of the Research Committee will be the audience; following the presentation, there will be a brief opportunity for the audience to ask the researcher factual questions about the research.

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[1] Grateful acknowledgments to Neil McLaughlin Cook, Liverpool Hope University College, for allowing his material to be reproduced here

Scene 2: A meeting of the Hope Park Research Committee
The meeting has been called to discuss two items:
a)   whether the paper presented in scene 1 deserves to be published, and
b)   how to respond to a request from a local school for a concise summary of how the
        question addressed by the seminar should be answered.

The meeting will be chaired by the Chair of the Hope Park Research Committee, who will be responsible for attempting to reach a group consensus on the two agenda items; during the discussion, the Methodological Advisor should be called upon to present her/his views. Possible conclusions for item "a" are:

- *definitely publish:* methodologically sound and represents a substantial advance upon other work;
- *publish if there's space:* methodologically sound but does not represent a substantial advance upon other work;
- *don't publish but advise researcher to carry out more work..* potentially represents a substantial advance upon other work but has significant methodological flaws;
- *don't publish:* does not represent a substantial advance upon other work and has significant methodological flaws.

The researcher has been invited to the meeting and should be given an opportunity to respond to comments made by committee members!
This scene should take approximately 30 minutes.

Scene 3: Review
Here we will step out of role play, and the module teacher will lead a brief discussion (no more than 10 minutes) on how the seminar has gone

Preparing for the Seminars

Researcher
You should be prepared to present as "your research" the study described in the research paper chosen for the seminar. Therefore, you will need to..

- o   read the paper carefully,
- o   prepare a 10 minute presentation of "your" aims, hypotheses, methodology, results & conclusions (the procedure, eg oral, via OHP; or via a handout, is up to you);
- o   do some thinking about strengths and weaknesses of "your" study so that you could make a response if the committee criticises "your" work!

Methodological Advisor
- o   Read the research paper carefully,
- o   prepare a brief presentation of strong points and weaknesses in relation to its methodology (the procedure, eg oral, via OHP; or via a handout, is up to you). You might like to consider the criteria identified at the end of the first workshop in the course.

Chair of the Hope Park Research Committee
- o   Consult the research paper itself and some other items on the reading list, to get an overall feel for the sort of points that might be made.
- o   Think about how you want to chair the sessions to ensure that the agenda is dealt with in the time allowed.

  o [By the following Thursday, prepare a poster summarising your group's recommendations for the article (with brief reasons), and your group's response to the local school.]

General Members of the Research Committee
Do <u>not</u> read the research paper.
Instead, consult the other items on the reading list, carefully considering:

a)   what conclusions seem justified in relation to the seminar issue;
b)   what methodologies have been used & what advantages/disadvantages have been associated with these;
c)   are there any aspects of the issue that appear to have been neglected so far?

This will mean that, when called upon by the Chair of the Hope Park Research Committee, you should be able to:

a)   express an opinion about whether the researcher has added much to the existing body of knowledge, and
b)   suggest a response to the request from the school.

Using PALS in examinations

Two examples are shown here. The first example is taken from an earlier module on counselling psychology when assessment was by examination. Examinations can sometimes encourage a surface approach to learning especially when they are unseen or appear to demand factual recall (Scouller, 1998). Here pedagogical principles of encouraging students to take a deep approach were incorporated in the design of the exam whereby students knew beforehand that they would be asked to apply their own chosen theory to two unseen PALS cases. This enabled them to learn about their theory in depth without fear of not knowing with was coming up on the examination paper. The examination also mimics, to some extent, the situation facing a counsellor who meets a new client for the first time, and does not know what issues that client will bring to the encounter.

A counselling examination example

'Taking ONE theoretical model of counselling of your choice, consider with reference to the relevant research, its strengths and limitations in TWO of the following scenarios.'

Peter is a 47 year old married man with no children who works as a salesman and who has come for counselling because of a problem with his father. All his life, Peter has complied with his father's wishes and tried to please him. Since his mother's death, his father has become more demanding and although they have never got on, he now expects Peter to do his shopping, telephone him daily and visit him at least twice a week. Peter has an elder brother called Philip who is a company director and is happily married with a son and a daughter. Their father never makes demands on Philip, because he says he has an important job to do and children to support. Things have come to a head because of two events. Peter's father recently told him that he was making his will out to Philip because he has children to support. Peter felt this was the final proof that his father never loved him and cannot accept him for who he is. At the same time, his father has said he cannot live on his own any longer so will have to live with Peter and his wife. Peter's wife is adamant that the old man should not come and live with them, but Peter feels he has to do what his father wants.

Karen is a mature student in her second year of study, who has four children, between the ages of 9 and 15. Her husband, Nick, is a long distance lorry driver, who has had to retire due to eyesight problems. Having discussed how best to support the family, Nick agreed somewhat reluctantly that Karen should go to college to do a B.Ed. The first year was very difficult for Karen as it soon became clear that Nick really resented her studying, particularly as she grew in confidence and her life opportunities started opening up. He would not help with childcare arrangements, or domestic duties and complained that she wasn't giving him or the children enough attention when she was at home because she always 'had her nose in a book'. Despite this, Karen struggled on and managed to just scrape through her first year exams. It is now nearly the end of her second year and exams are looming in four weeks time. Karen has come for counselling because she is suffering from palpitations, panic attacks and sleeplessness. She has lost all her concentration and feels she simply is unable to sit the exams.

Shelley is an eighteen year old, living rough with a history of self-harm and drug abuse. She is coming for counselling as part of a deal to get her a council flat and enable her to start looking for work. Shelley is shabbily dressed, smokes incessantly and smells. She is hostile and surly and refuses to open up or discuss anything at length. A brief letter from her GP

apprises you of the following facts: alcoholic mother who was in and out of a series of relationships when Shelley was a child; broken schooling due to Shelley having to look after her mother. A period of sexual abuse by one of her mother's boyfriends at the age of 17 led Shelley to attempt suicide and subsequently she has frequently inflicted injuries on herself. She finally moved out of her mother's house and ever since she has been stealing to support her drug habit.

Nigel is in his late twenties, wears the latest designer clothes, has a top of the range sports car and owns his own detached house in a highly sought after residential area. Nigel does not work to support his expensive life-style having inherited a small fortune from a distant uncle. Nigel is estranged from his immediate family, his mother, father and two elder sisters, who criticised his extravagances because, he felt, they wanted a share of his good fortune which he was not prepared to give them. He has had a constant succession of relationships with pretty girls which have all been of very short duration mainly because he feels they are after his money. He comes for counselling quite prepared to pay handsomely for the privilege of talking endlessly and boringly about "his problems" with the opposite sex. However, hidden behind the self-absorption of this young man there is a sense of emptiness and desperation.

The second example is taken from a third year module on psychology and education [1], and shows how brief scenarios can also be used as examination questions

A psychology and education examination example

Answer **THREE** questions.

1. The Secretary of State for Education has recently announced that, with effect from September 1998, all primary schools will be required to hold a "literacy hour" each day.

   Write a detailed letter to the Head Teacher of your child's primary school, explaining, with reference to the results of psychological investigations into the development of reading and writing skills, how you think this hour should best be spent.

2. Imagine that, as a practising Educational Psychologist, you have been asked by the Secretary of State for Education to join a working party that is being established to develop proposals for a proposed "numeracy hour" that would form a compulsory part of the daily routine in primary schools.

   Prepare a position paper for the first meeting of the Working Party, in which you explain how, on the basis of empirical evidence, you think this hour should best be implemented.

3. Imagine that Merseyside Shopping Catalogues University has decided to abolish lectures, and instead to deliver course material via detailed Module Handbooks. The Professor of Psychology recommends to the University's Academic Board that staff should be given guidelines, based on instructional psychology, about how to produce handbooks that students will find easy to understand and learn from; the Director of Educational Technology counters that such advice would be a waste of time because instructional psychology has not produced any sufficiently convincing and relevant findings. A heated discussion then ensues.

   Consider, with reference to empirical research relating to instructional psychology, which side you would take in the discussion.

4. Imagine that Merseyside Faith University College intends to introduce a new module, to be taken by all first year students, which aims to help students to develop more effective study strategies and to take a more sophisticated approach to their studies. The College approaches you, as a consultant in instructional psychology, for advice about the content of the proposed "core module".

   Present a set of recommendations to the College, and support each one with reference to appropriate theories and data.

5.   Imagine that the governors of your child's comprehensive school are interviewing candidates for the post of headteacher. During the interviews, each candidate is asked how they would set about reducing the amount of disruptive behaviour in the school. One candidate begins by confidently asserting "the answer is as simple as ABC".

Consider, on the basis of research into school behaviour, the extent to which this candidate would be likely to achieve the aim of reducing disruptive behaviour.

6.   Imagine that it is 2008. You are now a successful psychologist, and one of your friends from Liverpool Hope has just been appointed to her first post as a headteacher. After telling you her good news, she asks you, as a psychologist who has specialised in the self concept, for advice about how to ensure that her school enables all children to achieve their full potential.

Consider, on the basis of theoretical concepts and research evidence, how you might reply.

7.   Liverpool Hope is joining with a number of schools in the region to form a "Network of Hope". Imagine that you are appointed by the Network to serve as Consultant Psychologist; your initial remit is to evaluate the assessment and testing procedures used in each institution belonging to the Network.

Suggest a set of criteria you might use, and justify each criterion with reference to research relating to the psychology of assessment and testing.

8.   Imagine that you are the Principal Educational Psychologist for the Metropolitan Borough of Merseybeatle, and are preparing to meet Council Officials to defend your Service against proposed cuts. You decide to send each official a detailed letter justifying your claim that the service is "too valuable to be cut back".

Write a draft version of your letter, briefly highlighting some of the main areas of work the Service is now undertaking, and making good use of empirical evidence to persuade the Officials that each area is achieving worthwhile results.

Using PALS for presentations

The example is taken from a module on the Psychology of Teaching and Learning in an M.Sc in Applied Psychology. It was used as a trigger in class to enable students to put into practice several elements of the module that they had been learning about. The specific aim was for the students to consider how advice can be given in a systemic framework where 'problems' are not seen as the 'fault' of the pupils or of the teacher but occur as a result of a complex interaction within the context of the subject, department, and institutional framework (Biggs, 1999).

An oral presentation example

Applying a systemic model of learning to a school 'problem'

Imagine you've been called into Strivers Comprehensive School as a team of expert consultants in the field of teaching and learning by the head teacher, Mrs Worried, who is concerned that her 6th form pupils taking A-levels seem to be poor in their written assignments. This happens in all the different subjects they are studying and yet all her teachers report the pupils are bright, alert and reasonably interested in class and often come up with shrewd and intelligent observations. With one or two exceptions, however, the pupils' written work does not appear to be an accurate reflection of their abilities. Mrs Worried is concerned that this will have disastrous consequences on A-level results and the school will drop in the league tables. The matter has been discussed regularly at staff meetings and the remedy that was proposed was to set up a course of "learning to write" lessons for all sixth formers run once a week after school. This was run by a very able and motivated young teacher, Mr Keen, who was enthusiastic about helping pupils and committed to the idea of improving their writing skills. Unfortunately, this solution to the problem did not seem to work. Attendance at this course was very low, pupils complained they couldn't see the point and Mr Keen felt all his hard work and effort had not paid off, because the pupils thought the lessons were boring, patronising and they were not all motivated to learn what he had to recommend.

Consequently the problem now seems to have escalated because Mr Keen is offended and to boost his hurt pride has been telling the rest of his teacher colleagues that the pupils just aren't interested in studying and can't be bothered to learn anything. Not surprisingly, the pupils are picking up on these perceptions and beginning to feel disaffected and not valued by the teachers. Mrs Worried wants your team to come up with a set of recommendations that she can implement to improve what has become a rapidly worsening situation.

The task:

1. Each team of consultants is to produce an overhead outlining a set of practical recommendations based on taking a more systemic approach to learning and teaching.

2. Each team will give a brief 5 minute presentation using their OHPs, imagining that the rest of us are Mrs. Worried's somewhat sceptical and hard-pressed teachers and trying to convince us why we should follow your expert suggestions!

Using PALS for essay assignments

Essay assignments lend themselves readily to a PALS approach particularly where the objective of the assessment is to allow students to demonstrate their understanding of theoretical concepts by application.

The following examples are taken from a second year module in social psychology:

1. One morning, you receive a call from the Prime Minister. He is concerned about the increase in violence in Britain, and last night he happened to catch the end of an extremely violent programme on TV. This has been worrying him. Could there be a link? What should he do about it? He wants you, as a social psychologist, to come to 10 Downing Street and advise him as to the action he should take. (He is very interested in the relevant psychological literature). What will you tell him?

2. Mandy and Mark have had a serious argument which is threatening their relationship. Mandy has been offered a promotion as a senior lecturer in a university 200 miles away and very much wants to take it. Mark is adamant she should stay until he finishes his PhD and says that other opportunities will come Mandy's way when he is free to move with her. What would social psychologists predict to be the outcome of this situation?

References

Barter, C. & Renold, E. (1997). The use of vignettes in qualitative research. *Social Research Update*. http://www.soc.surrey.ac..uk/sru/SRU25.html. Accessed 27.09.03

Biggs, J. (2002). Aligning the curriculum to promote good learning. Paper prepared for LTSN Generic Centre Constructive alignment in action: *Imaginative curriculum symposium*, 4 November, 2002. http://www.ltsn.ac.uk/genericcentre/index.asp. Accessed 9 March 2004.

Breslow, L. Drew, L. Healey, M, Matthew, B & Norton, L. (in preparation). Intellectual Curiosity: A Catalyst for the Scholarships of Teaching and Learning and Educational Development. Chapter in book: *Exploring academic development in higher education: issues of engagement*, Cambridge Conference 2003, University of Cambridge.

Dolmans, D.H.J.M., Snellen-Balendong, H. Wolfhagen, I.H.A.P. & van der Vleuten, C.P.M. (1997). Seven principles of effective case design for a problem-based curriculum. *Medical teacher*, 19 , 3, 185-189

King, P.M. & Kitchener, K.S. (1994). *Developing reflective judgment: Understanding and promoting intellectual growth and critical thinking in adolescents and adults.* San Francisco: Jossey Bass

Norton, L.S. (under review). Using assessment criteria as learning criteria. A case study using Psychology Applied Learning Scenarios (PALS). In submission to *Assessment & Evaluation in Higher Education.*

Norton, L. S. (2001). Researching Your Teaching: The case for action research. *Psychology Learning and Teaching*, 1,1, 21-27.

Scouller, K.M. (1998). The influence of assessment method on student's learning approaches: multiple choice question examination versus assignment essay, *Higher Education*, 35, pp. 453-472.

APPENDIX A

PALS resources

The following are all PALS that have been used in counselling psychology. They can be freely used or adapted by lecturers who would like to use them in their counselling or clinical psychology courses

Justine: a fear of eating in public

Justine is a bright, attractive and likeable 19 year old in her first year at university and studying for a degree in psychology. She has been referred to you as the student counsellor by the head of psychology who is very worried about her. Apparently, after a good start, Justine has been missing lectures, seminars and workshops and is now falling behind in her coursework. The head of psychology tells you that when he asked to see Justine to discuss her progress, she broke down and was extremely distressed, could not stop crying and shaking but refused to tell him what was wrong. In your first meeting with Justine, you observe that she is thin and ill looking and is obviously finding it very hard to speak. After a long silence, she eventually blurts out that she is terrified of public speaking and simply cannot face the psychology workshops. She has also been completely thrown by an essay that she is supposed to be writing on phobias because every time she tries to read up on the subject, she is reminded of her own fear which now seems to be generalising to a fear of eating in public. In the last few weeks this has become so bad, she has practically stopped eating altogether, in an attempt to avoid the anxiety. Justine says she wants to give up her degree, but cannot because her parents are so proud of her and would be terribly disappointed if she did not graduate. She also says she cannot carry on with psychology because of the course requirements for participation. Although she does not expressly say it, the way she is talking makes you concerned that she may be thinking of harming herself.

Background information on Justine

Justine is the second child of Mr and Mrs Jones. Her elder sister Joanna tragically died three years ago at the age of 18 from anorexia nervosa. Justine was never very close to Joanna who was opposite in temperament and interests, being sociable and popular and not at all interested in academic work. Since her death, Justine has felt very guilty that she did not like her sister who was forever poking fun at her and calling her 'nerd' and 'swot'. The situation has been made worse by the refusal of her parents to ever talk to Justine about her sister – it is as if she never existed and Justine feels all their expectations and hopes rest on her as she is now their only child.

Mr Jones is a quiet, reserved and undemonstrative man who works as a postman. He has a passion for football which he follows avidly on the television but never goes out to local matches. He does not seem to have any friends and he hardly speaks to his wife or daughter except when absolutely necessary. Justine adores him and always thinks she will win his affections one day.

Mrs Jones is a loud, large and dominating person, who works part-time in the local school as a dinner lady. She is perpetually bad-tempered and makes cutting and offensive remarks to both Justine and her father implying that they are both a burden on her. Several times she has said that she would rather be living in a flat without either of them. On the odd occasion, Justine has stood up to her mother, Mr Jones has refused to take her side against his wife however unfairly Justine is being treated. Justine says she loathes her mother and cannot wait to leave home, but at the same time she wants to do really well at university because she thinks both her mother and father will be proud of her.

Sally: a mature student 'under pressure'

Sally, 30, is a mature student living at home with her father and in her second year at the North Merseyside University (NMU) studying for a degree in English. She is currently performing around the 2.2 level though her tutors think she is more than capable of getting a 2.1 if she would put in the effort, instead of the minimum that she has been doing so far. Sally has come to the NMU Student Counselling Service [2] because she has a dilemma, which she feels she cannot solve on her own. She has been offered an exciting job, but her father is adamant that she continues with her studies. Sally is clearly distressed and presents her story in rather a disjointed way, skipping from one problem area to another. She looks like a person who is nearing the end of her tether.

Sally's story

Sally has been offered a good job as a helper to her very rich disabled aunt (her father's sister). Aunt Jane has difficulty in walking following a stroke, but wants to travel the world and is prepared to pay handsomely for her own personal caregiver. She would like Sally to leave College and accompany her. Aunt Jane does not get on with Sally's father, as she did not approve of the way he left her niece to look after her mother who suffered from multiple sclerosis and was confined to a wheelchair. Sally was the eldest child of three and the only girl. She was expected from an early age to be a second mother to her brothers as well as look after her own mother during her long illness. Both her brothers went to university and are now doing well for themselves. Sally was kept at home to be the carer and to look after the house. Her father, who is a staunch Catholic and a Professor of Sociology at a neighbouring university, told Sally that the main way he could contribute to the family was by working harder to support them, so he was rarely at home. He also told her that since she was not as clever as her brothers, it was important for them to be given the chance to make good careers for themselves and it was her duty to help them. He would regularly enforce his will by making her attend church, confess her sins and pray to God to be given the humility to serve by looking after the family and not to pursue her own selfish goals.

When her mother died two years ago, her brothers both moved out of the family home and took jobs down in the south of England. It was at this time that Sally's father insisted that she should apply to NMU to do a degree. Sally was a little reluctant, believing herself to be rather 'thick'. In spite of what her tutors say, she does not think she is capable of getting a degree or of ever really living an independent life. She describes herself as 'a carer' for others. Her aunt's offer appeals to her, partly so she can escape from doing academic work and partly so she can get away from looking after her father who is adamant that she stays at home and continues her degree studies at College. She says she has tried talking to him, but every time she does, he flies into a rage or sinks into a depression, emotionally blackmailing her and reminding her of her duty to God. 'Honour thy father and thy mother' is one of his favourite phrases. Sally says that she is worried that if she does go, he will sink into a decline and it will be her fault. She has a strong religious faith herself and feels she may be eternally damned if she does not comply with her father's wishes.

Further information on Sally

Sally does not look well. She is pale and unattractive looking with no care paid to personal hygiene or her clothes. She looks more like a woman in her early forties. She admits that she drinks heavily but denies that this is a problem. She clearly has little self-esteem, is

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[2] The NMU Student Counselling Service offers the best provision in the whole of the North of England. It is served by counsellors who adopt a wide range of theoretical approaches including specialists in person- centred, cognitive- behavioural, existential, psychodynamic, individual psychology, and transactional analysis, as well as those who take a more eclectic approach.

consumed with feelings of guilt, is sleeping badly and feels she is a wicked and worthless person for wanting to do something for herself. She feels trapped because she knows her aunt is very similar in temperament to her father so she may well be exchanging one dominated lifestyle for another. She also has been very encouraged by what some of her English tutors have told her about her abilities and wonders if she really is capable of getting a good degree and making her own way in the world. Everyone seems to be putting her under pressure and she cannot see her way out of the dilemma…

Bernard: frightened of having a nervous breakdown

Bernard is a college lecturer in catering. He is in his mid forties, single and lives with his elderly mother who is housebound. Bernard has come for counselling because he feels he is breaking down under the stress of his job, where he has recently been asked to take on more administration which he hates. His boss is unsympathetic and in Bernard's view despises him because he still lives with his mother and doesn't have a family of his own. Ten years previously, when his mother became ill, Bernard suffered a nervous breakdown and he is scared that with the pressure of the increased workload and more demands from his mother it will happen again. He doesn't like to face his boss and he longs to escape looking after his mother, but he cannot see a way out.

He asks you as a counsellor, how he can resolve what he sees as a terrible dilemma.

Sylvia: feelings of emptiness and depression

Sylvia is personnel manager for a large advertising agency. She was appointed to this position at the very young age of 24. She achieved a first class degree in Sociology at Cambridge University where she was also an athlete of county standard. Sylvia believes her success is due to her father's indifference and her mother's controlling and pushing personality, which together have given her an almost obsessional need for achievement. Her father ignored her as his only child, having wanted a son to carry on the family business. Her mother was never satisfied with any of her achievements and always expected her to do better. An early memory Sylvia has is of coming home from school at the age of eight having won a special prize for a story and her mother saying what a pity there were spelling mistakes in it.

Sylvia has come for counselling because she has a persistent feeling of depression and emptiness that she feels whenever she is not working. In the last few months this feeling has got so bad that she is frightened that she is going mad.

John and Jane: escalating violence in a marriage

John and Jane are a couple in their late fifties, with two children who have grown up and left home. John was forced to retire due to ill health when he was only forty and at that time they both decided that he would stay at home and take care of the children and run the household while Jane, who had a good job as an assistant headmistress in the local comprehensive school, would become the family's main breadwinner. The couple has come for counselling because six months ago, Jane was made redundant. Since then, she has attempted to take over the running of the household and John feels deeply resentful. They

have been having frequent arguments, which have been getting increasingly violent ending in their last row where Jane actually punched John in the face leaving him with a black eye.

Both are worried at this turn of events and want to prevent anything worse happening, so hope that coming for counselling will help.

Karl: a history of bereavement and sexual abuse

Karl is eighteen years old, has just completed his A-levels and wants to take a gap year before going to university. Both his parents are dead and for the past four years Karl has been living with his older sister and her husband. In his first counselling session, he is very quiet and uncommunicative and will only say he feels anxious and is having problems sleeping. His body language shows a tremendous sadness and his face is taut with the effort of not crying.

This pattern continues for three more sessions, when just as it is time to go, Karl suddenly blurts out that his brother in law has systematically abused him sexually for the last three years whenever his sister, who is a nurse, was working night shifts.

Mark: the runaway

Mark has come for counselling at the age of 44 with a problem that leaves him feeling very ashamed. At frequent intervals in his life, Mark has run away. These episodes tend to occur when he is actually doing very well - he just packs a few possessions, gets in his car and drives off, leaving everything behind, including his family, his job and his house. His third wife has divorced him and he now lives totally alone without contacting any of the eight children from his three marriages. All his children have addictions of one kind or another. Mark himself grew up in a dysfunctional family with an alcoholic father and an anorexic mother. As an adult, Mark has embarked on scores of affairs and never remained faithful in any of his marriages. He has, he says, got a sex addiction, which gets particularly bad when he runs away. During these absences, Mark always takes menial jobs and lives in sordid accommodation, in spite of being a very bright accountant.

Mark can only see his problem as a sexual one and because of this he has remained celibate for the last ten months. He has now come to you for help because he cannot understand why his shame and despair is not easing.

Joanna: frightened to lead her own life

Joanna is twenty-five years old, pale and unattractive looking with no care paid to personal hygiene or her clothes. She looks like a woman in her early forties. Joanna has come for counselling because she has a dilemma, which she feels she cannot solve on her own. She has been offered a good job as a helper to a very rich disabled widow who wants to travel the world and is prepared to pay handsomely for her own personal caregiver. Joanna is well placed to be such a person. Being the eldest child of three and the only girl, she was expected from an early age to be a second mother to her brothers as well as look after her own mother who suffered from arthritis. Her father did his best but thought the main way he could contribute to the family was by working harder to support them, so he was rarely at home. Now her mother is dead, and her brothers are both grown up, Joanna desperately

wants to take this job, but her father is adamant that she stays at home where she is 'needed.' She has tried talking to him, but every time she does he either flies into a rage or sinks into a depression and weeps, begging her not to leave.

Joanna tells you that she is really worried that if she does go, he will sink into a decline and it will be her fault.

Ben: accused of being mentally unstable

Ben, who is sixteen, has come for counselling very reluctantly because his parents think he has a mental health problem. They have tried to get him to a psychiatrist but have had no success, as their G.P doesn't agree that Ben is ill, but has referred him for counselling. On your first meeting, Ben tells you that he didn't want to come but his parents made him. He goes on to say that he is worried that he is mentally ill, but is scared to find out. Ever since he can remember, his father (a workaholic, who drinks heavily and takes prescribed drugs to control his high blood pressure) has told Ben that he is inadequate, too sensitive, and a constant disappointment to him and Ben's mother. When Ben doesn't get good marks for schoolwork, his father flies into a rage and hits him repeatedly until he cries. Then his father jeers at him for being 'girly' and 'not man enough to take it'. During these episodes Ben's mother disappears and only afterwards when her husband has gone out of the house will she see to her son. When she does it is only to admonish him for causing such trouble to his father who is, she says, a wonderful man who does everything for them and who must not be upset, because of his high blood pressure. Things have now come to a head because on the last occasion, when his father started hitting him, Ben tried to defend himself for the first time and threatened that he would report his father for child abuse.

Both parents are outraged by this turn of events and are utterly convinced that Ben is unstable and needs psychiatric help.

Anna: suffering from anxiety and guilt

Anna is a first year student studying for a degree in physics. She is having difficulty settling into the university, which is nearly 300 miles away from her home. Her mother died unexpectedly with a heart attack just over a year ago. Anna was actually with her at the time out shopping. By the time they got to the hospital, her mother was pronounced dead. Anna is an only child and says she feels guilty about leaving her father alone at home. She feels anxious all the time and is suffering from palpitations and can't help feeling she also will die of a heart attack. Although she is intellectually very able, she has not been completing her work on time, is starting to miss lectures and is now thinking of giving up her studies and returning home.

She says:

"I keep getting this pain in my chest, I can't think straight and I can't do my work. My mum was only forty-eight and I keep thinking what's the point of it all? I could be dead in twenty years - I need to live a little and then I think 'What about my dad?' I should be with him. I'm so confused about everything - I feel like running away from everything, but there's nowhere to run..."

Robert: promiscuous behaviour

Robert is thirty two, unemployed and although rather shabbily dressed is quite personable and finds it easy to attract women. He was in care when he was a child from the age of five when his mother, who was a single parent, left him and his eight year old sister Sarah to go and live with another man. An elderly aunt and uncle fostered Sarah but although his uncle wanted to take Robert as well, his aunt refused as he was of mixed race, having a different father to Sarah, and she didn't want the neighbours to gossip. His childhood inevitably became a succession of foster homes and community schools; his education was disjointed so he left without any qualifications. He has had a series of jobs (roadworker, waiter, shop assistant) and can do very well as he is a hard worker. Inevitably though he loses the job because of his inappropriate and promiscuous behaviour with female employees. He has now come to a point in his life where he is sick of the way he is.

He says

"Every time I pick myself up and start making something of my life, I blow it. I keep getting involved with women, single, married, I don't care. It gets me into all sorts of trouble and I end up getting the sack. Strange thing is, I don't even like some of these women -it's like I'm addicted to catching them and then when I have, I lose interest…"

Gemma: obsessive compulsive disorder

Gemma is twenty-two, happily married for four years with a little boy called Pete who has just had his second birthday. Her husband Danny adores her and she has a wide and supportive extended family on both sides. Gemma is making life at home very difficult as she has an obsession with keeping everything clean. At first Danny thought that she was just a proud housewife but her constant cleaning has begun to seriously affect family life and is now extending to affect Pete. Gemma not only washes her own hands constantly 'to get rid of the germs', she is now insisting that their little boy washes his hands frequently throughout the day and the frequency is increasing. She also changes his clothes four or five times a day and repeatedly disinfects his toys. This behaviour is now beginning to extend wider as Gemma is increasingly reluctant to let Pete play outside the house as she is frightened he will become contaminated by germs and for the same reason she does not like other children coming to play with Pete.

She is aware that this behaviour is going to have a serious effect on Pete's development and is desperately worried about it, but when she tries to control her need to keep everything clean, her anxiety levels soar:

'I know I'm harming Pete and it's not normal, but I can't control it. I'm so frightened he will pick up germs and become ill- everywhere is contaminated with germs. I can keep them down in the house and keep us all fairly clean and safe, but I can't stop germs from outside coming in and contaminating my baby. It's causing problems with me and Danny - he can't understand why I'm doing this and neither can I rationally, but when I try to stop, I get so anxious I just have to start cleaning and washing again'

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APPENDIX B

Suggestions for further reading
on problem-based learning

Books

Alavi, C. (Ed) (1995). *Problem-based learning in a health sciences curriculum.* London: Routledge

Barrows, H.S. & Tamblyn, R.M. (1980). *Problem-based Learning, An Approach to Medical education.* New York: Springer.

Boud, D. (Ed) (1985). *Problem-based Learning in Education for the professions.* Sydney: Higher Education Research and Devleopment Society of Australasia

Boud, D. & Feletti, G. (Eds). (1997).*The Challenge of Problem-Based Learning.* London: Kogan Page.

Duch, B.J. Groh, S.E. & Allen, D.E. (Eds) (2001). *The power of problem-based learning; a practical "how to" for teaching undergraduate students in any discipline.* Stylus Pub Llc.

Evensen, D. H. & Hmelo, C. E. (Eds) (2000). *Problem-Based Learning: A Research Perspective on Learning.* Mahwah, NJ: Lawrence Erlbaum.

Glen, S. & Wilkie, K. (1999). *Teaching problem-based Learning*. London: Macmillan

Savin-Baden, M. (2000). *Problem-Based Learning in Higher Education: Untold Storie*s. Buckingham: Open University Press and SRHE.

Journal papers with abstracts

Connor-Greene, P.A. (2002). Problem-Based Service Learning: The Evolution of a Team Project. *Teaching of Psychology*, 29, (3), 193-197.

Abstract: In this article, I describe the evolution of a problem-based service learning project in an undergraduate Abnormal Psychology course. Students worked in teams on a semester-long project to locate and evaluate information and treatment for specific psychiatric disorders. As part of the project, each team selected relevant bibliographic materials, made site visits to area treatment facilities, and prepared resource materials for people in the community seeking information on psychiatric disorders. I modified the process but not the content of the project over 4 semesters. Student evaluations improved significantly after I implemented students' suggested changes.

Copland M.A. (2000). Problem-Based Learning and Prospective Principals' Problem-Framing Ability. *Educational Administration Quarterly*, 36, (4), 585-607.

Abstract: This article reports on an exploratory study that inquired about the teaching and learning of administrative problem-framing skills in a problem- based learning (PBL) administrator preparation program. A literature-based definition of problem-framing ability is developed, and a conceptual framework for the study, rooted in theories of cognition and social psychology, is introduced. Incorporating the use of a quasi-experimental study design, the problem-framing skills of three successive student cohorts with graduated levels of exposure to PBL are assessed. An ANCOVA reveals that all three cohorts differ significantly in problem-framing ability associated with their level of exposure to PBL. Finally, the implications of the findings for instructional practice and future research on administrator preparation are explored.

Dahlgren M.A. (2000). Portraits of PBL: Course objectives and students' study strategies in computer engineering, psychology and physiotherapy. *Instructional Science,* 28, (4), 309-329.

Abstract: The central theme of the investigation concerns the role of course objectives in relation to students' study strategies in problem-based learning (PBL). The results comprise data from three different PBL programmes at Linköpings Universitet; a Bachelor's programme in physiotherapy, a Master's programme in psychology, and a Master's programme in Computer Engineering, respectively. In all three programmes, the faculty provides course objectives with the intention that these should function as a supportive structure and guide for the students' independent studies. The results show that the objectives were used differently in the different programmes; as an integrated tool in the learning process, as an administrative schedule or as a retroactive checklist, respectively. The students' use of the course objectives in the learning process varied according to how the objectives were formulated and conceived. The relationship between the format of objectives provided by the faculty and how students deal with them in the learning process could also denote fragments of the different educational cultures within the three programmes and how the meaning of problem-based learning is interpreted.

Dahlgren, M. A. & Dahlgren, L. O. (2002). Portraits of PBL: Students' Experiences of the Characteristics of Problem-Based Learning in Physiotherapy, Computer Engineering and Psychology. *Instructional Science*, 30, (2), 111-27.

Abstract: Describes a study that analyzed how students in three different Swedish university programs conceived of the meaning of problem-based learning and how they experienced their studies within a problem-based learning program. Discusses learning in context, social interaction, meta-cognitive reasoning and self-directed learning, and academic cultures.

The present study is part of a comprehensive research project with the general aims of comparing how problem-based learning is realised in three different professional educational programmes. The specific aims of this study are to describe and analyse how students in the three different programmes conceive of the meaning of problem-based learning and how they experience their studies within a problem-based learning programme. The PBL programmes are a Bachelor's programme in Physiotherapy, a Master's programme in Psychology, and a Master's programme in Computer Engineering. Data were analysed qualitatively. The results reveal differences in how the students in the three programmes conceive of their autonomy as learners, co-operation with their counterparts and the authenticity of the learning task. The findings possibly also reflect the taken-for-granted perspectives of knowledge, embedded in the cultures of the professional practices and the scientific disciplines to which the programmes pertain.

Dahlgren, M. A. & Öberg, G. (2001). Questioning to learn and learning to question: Structure and function of problem-based learning scenarios in environmental science education. *Higher Education*, 41, (3), 263-282.

Abstract: In problem-based learning, scenarios relating to real life are used as a point of departure for the learning process. Even though the importance of suitable cases or scenarios in bringing about a fruitful learning process is emphasised in the literature, few studies focus on how they actually function in the learning process. This study focuses on how the scenarios used in a ten-week introductory course of a new four-year undergraduate programme in environmental science functioned in terms of the structure and content of the questions they evoked. Data were gathered through diary notes from nine groups of students, comprising 5–8 students per group. The data were subjected to a qualitative analysis aimed at describing the structure and content of the questions generated by the groups. Five different kinds of questions were identified and labelled; encyclopaedic, meaning-oriented, relational, value-oriented and solution-oriented. All scenarios generated questions pertaining to all five categories in all groups, but the emphasis varied. The results are discussed in relation to the design of scenarios, and in relation to students' approaches to learning.

De Grave, W. S.; And Others, (1996). Cognitive and Metacognitive Processes during Problem Analysis. *Instructional Science*, 24, (5), 321-341.

Abstract: To investigate whether problem-based learning leads to conceptual change, the cognitive and metacognitive processes of a group of medical students were studied during the problem analysis phase, and their verbal communication and thinking processes were analyzed. Stimulated recall of the thinking process during the discussion detected a conceptual change by students.

Des Marchais, J.E. (1999). A Delphi technique to identify and evaluate criteria for construction of PBL problems. *Medical Education*, 33, (7), 504-508. HCL

Abstract:
Introduction: In the process of PBL implementation, faculty members often ask what are the criteria for constructing problems and subsequently evaluating them. Although experts agree on a fundamental theoretical basis for developing problems, mostly prototypical, it is difficult to find specific criteria that could be used in constructing PBL problems.
Method: A Delphi technique using six independent judges from the Rouen School of Medicine, France, answered this question. It took four rounds and five months.
Results: Nine criteria were identified and rank-ordered according to their relative importance: 1 – stimulating thinking, analysis, and reasoning (openness 6·8 points); 2 – assuring self-directed learning (autonomy 6·5); 3 – using previous basic knowledge (richness 6·2); 4 – proposing a realistic context (attractiveness 5·7); 5 – leading to the discovery of learning objectives (coverage 5·0); 6 –arousing curiosity (inquisitiveness 5·0); 7 – choosing topics related to public health (relevance 5·0); 8 – assuring contextual breadth (comprehensiveness 4·8); and 9 – choosing an appropriate vocabulary (medical encoding 4·7).
Discussion: The identification represents a fresh outlook on the PBL process, from judges who had recent experience in constructing PBL problems. Related to Barrow's dimensions, these criteria could be seen as a more concrete and specific level of conceptualization. Paired with those found in the literature, they match six out nine already identified, although not prioritized criteria.
Conclusion: Judges from a school just having implemented PBL, found that Reasoning and Autonomy are the most important criteria for constructing PBL problems.

Dolmans D.H.J.M.; Wolfhagen I.H.A.P.; van der Vleuten C.P.M. & Wijnen W.H.F.W. (2001). Solving problems with group work in problem-based learning: hold on to the philosophy. *Medical Education*, 35, (9), 884-889.

Abstract:
Introduction
Problem-based learning (PBL) has gained a foothold within many schools in higher education as a response to the problems faced within traditional education.
Discussion
Working with PBL tutorial groups is assumed to have positive effects on student learning. Several studies provide empirical evidence that PBL stimulates cognitive effects and leads to restructuring of knowledge and enhanced intrinsic interest in the subject matter. However, staff members do not always experience the positive effects of group work which they had hoped for. When confronted with problems in group work, such as students who only maintain an appearance of being actively involved and students who let others do the work, teachers all too often implement solutions which can be characterized as teacher- directed rather than student-directed. Teachers tend to choose solutions which are familiar from their own experience during professional training, i.e. using the teacher-directed model. These solutions are not effective in improving group work and the negative experiences persist.
Conclusion
It is argued that teachers should hold on to the underlying educational philosophy when solving problems arising from group work in PBL, by choosing actions which are consistent with the student-directed view of education in PBL.

Forbes, H.Duke, M.& Prosser, M. (2001). Students' perceptions of learning outcomes from group-based, problem-based teaching and learning activities. *Advances in Health Sciences Education*, 6,(3),205-217.

Abstract: Explored the variation in perceptions of learning outcomes reported by 91 undergraduate nursing students enrolled in a problem-based learning subject in a pre-registration Bachelor of Nursing course (BN). The findings from this study indicate that students perceive their learning in the group based teaching/learning modality as effective in focusing them on the reality of their role in the clinical practice environment, while lectures and laboratories provided the skills and knowledge required for this setting.

Gijselaers, W. H. (1996). Connecting Problem-Based Practices with Educational Theory. *New Directions for Teaching and Learning*, 68, 13-21

Abstract: Three principles based on research in cognitive psychology explain the potential power of problem-based learning: (1) learning is a constructive, not a receptive process; (2) metacognition affects learning; and (3) social and contextual factors influence learning. These principles are more likely to be activated when specific teacher behaviors and problem types are used. (Author/MSE) Notes: Theme issue: "Bringing Problem-Based Learning to Higher Education: Theory and Practice."

Huey, D. (2001). The Potential Utility of Problem- based Learning in the Education of Clinical Psychologists and Others. *Education for Health: Change in Learning & Practice*, 14, (1), 11-19.

Abstract: Clinical psychologists, like most health professionals, are in essence clinical problem-solvers. However, dealing with mental health problems may necessitate a greater relative reliance upon inductive clinical reasoning during the problem-solving process. To develop a provisional problem formulation mental health professionals may have to make sense of the co-occurrence of complex and poorly delineated problems. Claims have been made, predominantly in the literature on medical education, regarding the utility of problem-based learning (PBL) for achieving aims central to the effective performance of this role. In this article, after characterizing clinical psychology and PBL, we briefly explore the benefits claimed for PBL and assert that the putative cognitive and interpersonal consequences of the approach may be particularly pertinent to mental health practice. Particular emphasis is placed upon the necessity of facilitating effective clinical reasoning, that is, teaching future practitioners how to, rather than what to, think about complex psychopathology. PBL is also considered in the wider context of models of experiential learning and methods for teaching problem-solving. Finally, future research questions are suggested which may provide answers relevant to the facilitation of effective clinical reasoning in all health professions.

Mayo J. A. (2002). Case-based instruction: a technique for increasing conceptual application in introductory psychology. *Journal of Constructivist Psychology*, 15, (1), 65-74.

Abstract: As an alternative or supplement to the traditional lecture format, in case-based instruction (CBI) students actively experience an actual or fictional problem-centered narrative within applied settings. As a means of teaching reasoning skills that link theory to practice, CBI has been used across many disciplines, including business, law, medicine, teacher education, and the natural and behavioral sciences. In the present investigation, I formulate and use a hypothetical case narrative in teaching conceptual analysis and application of major theories (biological, psychodynamic, behavioral, humanistic, cognitive, and cross-cultural) in introductory psychology. Intact classes were randomly assigned to receive either CBI, combining small- and large-group discussion, or traditional lecture-based instruction (Control). As predicted, results of an independent t -test analysis show that students in the CBI condition outperformed those in the Control with respect to theoretical

comprehension and application. Group discussions were generally lively and reflective of critical thinking and higher-level conceptual understanding. Overall, students viewed CBI not only as realistic and helpful in the learning process, but also as challenging, creatively stimulating, interesting, and enjoyable. Results are discussed in light of constructivist and cooperative learning models.

Milne M. J.& McConnell P. J. (2001). Problem-based learning: a pedagogy for using case material in accounting education. *Accounting Education*, 10, (1), 61-82.

Abstract: This paper provides an extensive review of the developments of problem-based learning (PBL). The paper describes an idealized PBL format and outlines the learning rationale for such an approach. The paper also reviews the empirical evidence from the medical literature, where PBL has undergone its greatest application. This literature, which has grown to be quite extensive, suggests PBL is particularly effective in developing self-directed learning behaviours in students as well as increasing their levels of motivation and clinical reasoning skills. The paper concludes that PBL approaches appear to be particularly suited to bridging the gap between tertiary education and life as a professional, and that accounting educators need to seriously consider such an approach as a means of organizing their case study material.

Mpofu D.J.S.; Das M.; Murdoch J.C. and Lanphear J.H. (1997).
Effectiveness of problems used in problem-based learning. *Medical Education*, 31, (5), 330-334.

Abstract: Where problem-based learning (PBL) is the main method used in medical curricula, the literature suggests that it is crucial that the problems used are effective in facilitating students to identify relevant learning issues. These learning issues guide the students' studying. The present investigation explores the extent to which students identify relevant issues following exposure to prepared paper problems. In the preparatory year, in an Introduction to Medicine module, four groups of students were exposed to six themes (Health Care System, Environment and Health, Alternative and Islamic Medicine, Chronic Illness, Infectious Diseases, and Prevention and Health Promotion). Each group had two facilitators per theme. Having discussed the prepared problems, the students identified learning issues which were collected for the purpose of the study. Two content experts, using a Likert scale, analysed learning issues for their concordance to staff objectives per theme. Kappa coefficients were computed for the six PBL themes in order to assess inter-rater agreement. Learning issues identified as having no relationship to theme objectives were further analysed for their relevance to theme objectives. No objective was totally omitted by any student group. There was a 100% concordance of objectives to learning issues demonstrated over four themes. The relationship of learning issues to theme objectives ranged from 55-85% in the theme on health care system, and 73-94% in the theme on environment and health. Irrelevant learning issues were identified in the first two PBL themes addressed. Kappa coefficients over the six PBL themes varied from 0ý49 to 0ý82.

Norman G.R.& Schmidt H.G. (2000). Effectiveness of problem-based learning curricula: theory, practice and paper darts. *Medical Education*, 34, (9), 721-728.

Abstract: In a recent review article, Colliver concluded that there was no convincing evidence that problem-based learning was more effective than conventional methods. He then went on to lay part of the blame on cognitive psychology, claiming that 'the theory is weak, its theoretical concepts are imprecise... the basic research is contrived and *ad hoc*'.

This paper challenges these claims and presents evidence that (a) cognitive research is not contrived and irrelevant, (b) curriculum level interventions are doomed to fail and (c) education needs more theory-based research.

Nowak, Jeffrey A. and Plucker, Jonathan A. (2002). Do as I say, not as I do: Student assessment in problem-based learning. *Inquiry: Critical Thinking Across the Disciplines*, 21, (2),17-31.

Abstract: Problem-based learning (PBL) is an increasingly popular curricular technique for developing academic and intellectual talent. Aligning PBL activities and subsequent student assessment often proves to be difficult for teachers, with many PBL activities followed by traditional, pencil-and-paper assessments. This misalignment confuses students by disrupting their understanding of teacher expectations. In this paper, the authors discuss the importance of instruction-assessment alignment during PBL and provide detailed examples of exemplary units.

Reynolds, F. (1997). Studying psychology at degree level: would problem-based learning enhance students' experiences? *Studies in higher education*, 22, 3, 263-275.

Abstract: Problem-based learning is increasingly used in medical and paramedical education, both in physical and psychological science course components. Several studies confirm its value in helping students specifically to learn about applied issues such as the psychological aspects of illness and treatment. However, its relevance to the academic study of psychology at degree level has been largely unexplored. This article outlines some possible disadvantages of traditional approaches to undergraduate psychology teaching. The rationale of problem-based learning is described Examples are given of how psychology is studied by occupational therapy students in a problem-based learning curriculum at Brunel University College, and suggestions are made for extrapolating such approaches to undergraduate psychology. Taking one 'problem' as an example, comparison is made between the topics explored by different student groups, revealing the rich potential of the approach. Some evaluation is offered of the strengths and difficulties of this method of learning.

Journal papers without abstracts

Albanese, M. A. & Mitchell, S. (1993). Problem-based learning: A review of literature on its outcomes and implementation issues. *Academic Medicine*, 68, (1), 52-81.

Albanese, M. A. (2000). Problem-based learning: Why curricula are likely to show little effect on knowledge and clinical skills. *Medical Education*, 34, 729-738.

Colliver, J. A. (2000). The effectiveness of problem-based learning curricula: Research and theory. *Academic Medicine*, 75, 259-66.

Das, M, Mpofu, D, Dunn, E & Lanphear, J H (1998). Self and tutor evaluations in problem based learning tutorials: is there a relationship? *Medical Education.* 32 411-418.

De Grave, W S, Dolmans, D H J M & van der Vleuten, C P M (1999). Profiles of effective tutors in problem-based learning: scaffolding student learning. *Medical Education.* 33 901-906.

Dolmans, D H J M, Gijselaers, W J H, Moust, J H C, de Grave, W , & van der Vleuten, C P M (2002). Trends in research on the tutor in problem-based learning: conclusions and implications for educational research. *Medical Teacher.* 24 173-180.

Dolmans, D.H.J.M. Snellen-Balendong, H. Wolfhagen, I.H.A.P. & van der Vleuten, C.P.M. (1997). Seven principles of effective case design for a problem-based curriculum. *Medical Teacher.* 19, (3), 185-189.

Dolmans, D H J M, Wolfhagen, I H A P, van der Vleuten, C P M & Wijnen, W H F W (2001). Solving problems with group work in problem-based learning: hold on to the philosophy. *Medical Education.* 35 884-889.

Driessen, E & van der Vleuten, C (2000). Matching student assessment to problem-based learning: lessons from experience in a law faculty. *Studies in Continuing Education.* 22. 235-248.

Duke, M, Forbes, H, Hunter, S & Prosser, M (1998). Problem-based learning (PBL): conceptions and approaches of undergraduate students of nursing. *Advances in Health Sciences and Education.* 3. 59-70.

Engel, C E (1992). Problem-based learning. *British Journal of Hospital Medicine.* 48. 325-329.

Harland, T (2003). Vygotsky's Zone of Proximal Development and Problem-based Learning: linking a theoretical concept with practice through action research. *Teaching in Higher Education*, 8, (2), 263-272

Hay, P J & Katsikitis, M (2001). The 'expert' in problem-based and case-based learning: necessary or not? *Medical Education.* 35 22-26.

Hendry, G D, Frommer, M & Walker, R A (1999). Constructivism and problem-based learning. *Journal of Further and Higher Education.* 23 359-371.

Lyon, P M & Hendry, G D (2002). The use of the Course Experience Questionnaire as a monitoring evaluation tool in a problem-based medical programme. *Assessment and Evaluation in Higher education.* 27(4) 339-351.

MacDonald, D & Isaacs, G (2001). Developing a professional identity through problem-based learning. *Teaching Education.* 12, (3), 315-333.

Margetson, D. (1998). What counts as problem-based learning? *Education for Health* 11, (2), 193-201.

Needham, D. R. & Begg, I. M. (1991). Problem-oriented training promotes spontaneous analogical transfer. Memory oriented training promotes memory for training. *Memory and Cognition*, 19, 543-557.

Nendez, M E & Tekian, A (1999). Assessment in problem-based learning medical schools: a literature review. *Teaching and Learning in Medicine.* 11. 232-243.

Norman, G. R. & Schmidt, H. G. (1992). The psychological basis of Problem-Based Learning: A review of the evidence. *Academic Medicine*, 67, (9), 557-565.

Savery, J. R. & Duffy, T. M. (1995). Problem based learning: An instructional model and its constructivist framework. *Educational Technology*, 35, (5), 31-38.

Schwurth, LWT, Verheggen, M M, van der Vleuten, C P M, Boshuizen, H P A & Dinant, G J (2001). Do short cases elicit different thinking processes than factual knowledge questions do? *Medical Education.* 35, (4), 348-356.

Segers, M & Dochy, F (2001). New assessment forms in problem-based learning: the value added of the students' perspective. *Studies in Higher Education* 26 327-343.

Thomas, R E (1997). Problem-based learning: measurable outcomes. *Medical Education.* 31. 320-329.

Valle, R, Petra, I, Martinez-González, A, Rojas-Ramirez, J-A, Morales-Lopez, S & Piña-Garza, B (1999). Assessment of student performance in problem-based learning tutorial sessions. *Medical Education.* 33. 818-822.

Vernon, D. T.A. & Blake, R. L. (1993). Does Problem-Based Learning work? A meta-analysis of evaluative research. *Academic Medicine*, 68, (7), 550-563.