

AS and A LEVEL
Teacher Guide

PSYCHOLOGY

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Meet the Researcher – Dr Peter Lovatt (‘Doctor Dance’)

Version 1



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Meet the Researcher – Dr Peter Lovatt (*‘Doctor Dance’*)

Researcher in Sport and Exercise Psychology

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1. Questions about the research

How did the social dance study come about? How did you become involved?

As the head of the Dance Psychology Lab I'm always on the look out for scientific research related to dance. I came across some research by a group of physiotherapists in the USA (Hackney, Kantorovich, Levin and Earhart, 2007) which showed that when people with Parkinson's disease took part in tango dance classes they showed a significant improvement in balance. This is important because poor balance is one of the negative symptoms of Parkinson's disease. What was even more striking for me was that the researchers had either given people with Parkinson's disease 20 sessions of tango classes or 20 sessions of exercise classes and they found an improvement in balance only for those in the tango group. This suggested to me that there is something special about dance that provides a benefit over and above that derived from exercise. Over the next few years several other researchers reported similar findings and I wanted to see whether dance could also have a moderating effect on some of the psychological symptoms associated with Parkinson's disease, such as mood and problem solving.

Can you briefly explain who took part, what were the procedures and what did you find?

In this study we were interested in the effect of recreational dance on the mood of elderly people, and more specifically on older people with Parkinson's disease. We recruited a group of 37 people aged between 50 and 80. Twenty-two of the participants had been diagnosed with mild to moderate Parkinson's disease and the other 15 acted as age-matched controls. Our participants took part in weekly dance sessions for ten weeks. The dance sessions were designed to be upbeat and characterful and the dances could be done either sitting down or standing up. In total the participants learnt five dances based on Bollywood, Tango, Cheerleading, Old Time Music Hall and a medley of party dances, which included the Charleston and Saturday Night Fever. The style of dancing was changed every two weeks. Our participants therefore had to learn a new dance routine and remember it every two weeks (this therefore required the cognitive processes of learning and memory). They had to execute the dance routine (requiring the cognitive processes of spatial awareness and the exertion of physical activity) and they had to move in time to music (requiring the process of sensorimotor coupling, whereby they had to synchronise their movements to musical rhythms). We measured the mood of our participants using two instruments: the Profile of Mood States (POMS) and the Brunel University Mood Scale (BRUMS). We were interested in both short-term and longer-term changes in mood. Therefore, we measured short-cycle changes in mood



by taking measures of mood immediately before and immediately after a dance class and we measured long-cycle changes in mood by taking measures of mood a week before the first dance class and a week after the final dance class. We found that total mood disturbance changed significantly (in a positive direction) over time, both in the short-cycle and the long-cycle. In general, participants felt less tense, and for those people who had higher levels of depression they reported less fatigue following the dance classes.

What did you conclude from the research?

We concluded that taking part in weekly dance classes can improve mood in the elderly, with or without Parkinson's disease. However, we are unclear about the variables and/or mechanisms that might influence the magnitude of the effect of dancing on mood. There are many different aspects to dance. For example, our dance sessions were very social, and so part of the improvement in mood might be attributable to the social aspect of dance. Our dance sessions were also safe, caring and unthreatening and it may be this environment that partially led to improvements in mood. This is known as the "healing balm" effect. Finally, all of our dance sessions were accompanied by lively popular music, which can make you want to tap your feet, and so this might also have contributed to improvements in mood. In future studies we hope to tease these aspects apart.

What benefits does exercise have on mental health?

Dance seems to have a positive effect on mental health and studies, including our own, show the greatest benefit for people with depressed mood. Studies have shown that dance can help to increase feelings of vigour and decrease feelings of fatigue. Therefore if you're feeling tired or you've got low energy levels or you're feeling a little depressed, then dancing might help you feel more awake, full of energy and put you in a more positive state of mood.

2. Methodological Issues and Debates in The Social Dance Study

Was your study reliable and valid?

Our sampling method and statistical analyses give us confidence that our findings are reliable and valid. However, there are some limitations with our work. First, our sample was self-selecting. This means that we advertised for people to take part in our study and those people who met the inclusion criteria, lived locally, were available, thought they'd like dancing, and who could commit to a twelve week research project took part. This means that we didn't recruit randomly from the population of people who have Parkinson's disease, potentially leading to a sampling bias. This has implications for one of the central findings of our study. Previous research has suggested that people with Parkinson's disease have higher depression, fatigue and anxiety than people without Parkinson's disease, and that people who are more depressed show greater improvements in mood following dance interventions. However, there were no differences in our sample in baseline depression between those with Parkinson's disease and those without. It is possible that those people with higher depression scores may be less likely to volunteer to take part in such a study.

Did you encounter any methodological issues?

It is difficult running studies with people who have certain medical conditions, particularly recruiting sufficient participants who meet the inclusion criteria. For example, we needed people who had Parkinson's disease, but the Parkinson's disease couldn't be either too severe or too mild. The participants had to achieve above a certain level in the Mini Mental State Examination and we needed people who did not have any other significant medical conditions that might prevent them from engaging fully with the study. All this meant that we didn't have enough participants to run control groups of participants with Parkinson's disease. It would have been better if we had several groups of people with Parkinson's disease and allocated some people to a dancing group (as we did) and other groups to a non-dancing exercise group, and perhaps other groups to control for factors such as socialisation, environment and music.

Arranging practicalities such as parking at the lab and chaperoning people with movement difficulties around the testing and dance areas requires a large number of assistants. Encouraging people to attend all the sessions and therefore minimising drop-out is difficult, especially as we were not able to pay participants to attend. Two of our participants dropped out due to ill health (unrelated to the dance sessions). All this led to a small sample size and this can restrict the type of statistical analyses that can be run.

Why did you choose participants with Parkinson's Disease? Was your sample biased and ethnocentric?

We chose to work with people with Parkinson's disease because we wanted to replicate and extend the work of

other research groups, who had made claims about the positive effect of dance-interventions on the symptoms of Parkinson's disease. The scientific process is based building up knowledge through hypothesis testing, replication and extending what other people have found. It is through replicating and extending research that we are able to have confidence that a particular finding is not just a spurious finding.

Our sample was not biased but then it was not culturally diverse either. The sample was made up predominantly of people who might describe themselves as white British, though I must stress that we did not take details of our participants' ethnicity. While we have no reason to think that the symptoms of Parkinson's disease vary as a function of ethnicity, people's attitudes towards dance may vary as a function of ethnicity. It is possible that people's attitudes towards dance may influence the benefit they derive from dancing, such that someone who hates to dance may derive less benefit than someone who happily engages in dance. If this is the case then we might expect people from cultures where dance is embraced to benefit more from a dance intervention than people from cultures where dance is either not embraced, or even forbidden.

Would you consider your research to be socially sensitive? How did you ensure the study complied with ethical guidelines?

Before any study can be conducted on human participants, especially those with particular medical conditions, a research proposal must be approved by an ethics committee. This was the case with our study, which was scrutinised by the ethics committee of the University of Hertfordshire. In addition, our study was scrutinised by Parkinson's UK (<http://www.parkinsons.org.uk>), and it was Parkinson's UK who helped us to recruit our participants

How can this study be useful to society?

As a society we spend billions of pounds every year on health care. If we can establish that dance has a predictable and reliable effect in terms of helping to reduce some of the symptoms of ill-health then prescribing dance could become part of a treatment plan for some people. Dance is inexpensive, easy to do and entirely natural. Our study has shown that dancing can improve the mood of older people. Previous studies have shown that dance can be used as part of a weight management programme, been effective at helping people with arthritis and is an effective tool for delivering the exercise necessary following cardio vascular disease. Having an understanding of how moving our bodies changes our physical and psychological health and well-being would be very useful to society.

3. Debates - Short answers

Free will or determinism?

Free will, though it is clear that our behaviour, as it stems from our free will, can determine our future.

Nature or nurture?

Both. We are born with our genes and hormones and these influence some of our behaviours (like dancing at nightclubs apparently!) Nevertheless, I'm certain that we can cheat nature and create ourselves based on our free will and our interactions with others.

Reductionism or holism?

Holism. I took a degree in Cognitive and Computation Neuroscience and a Reductionist professor told us that once we knew exactly how neurons in the brain worked we would be able to explain all of human behaviour. He thought we were just ten years away from building an entirely artificial brain that would work in exactly the same way as a human brain. That was over twenty years ago and I am more convinced than ever that we won't find the answer to the rich diversity of human thought and behaviour just by trying to understand the way neurons, and their associated chemicals, interact.

Individual or situational explanations?

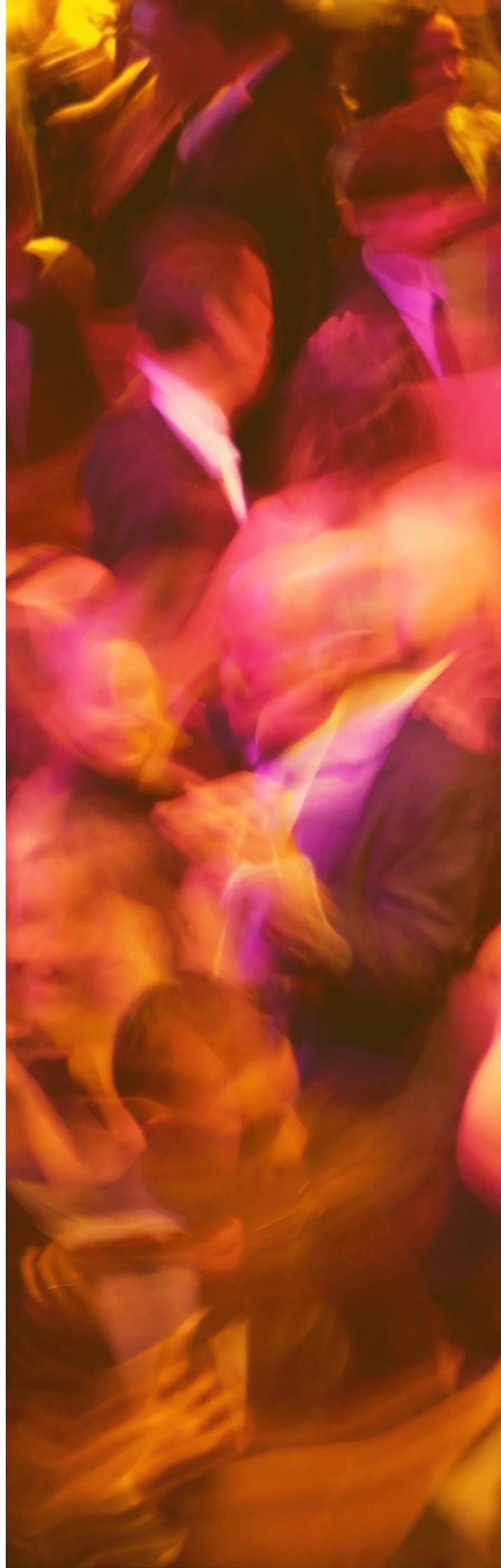
Both, but they clearly interact. What we think of in terms of our individual limitations might be the limitations that our situation imposes on us.

Is psychology a science?

It depends how you study it. If you look at human thought and behaviour through a scientific lens then psychology is a science. However, if you look at human thought and behaviour using non-scientific methods then psychology is a form of art. It really depends on what glasses you wear. A scientist and an artist can look at the same phenomena and "see" very different things; it's why, as a scientist, I love working with artists.

Why should people study psychology?

Because it gives people a way of looking at human thought, feelings and behaviour. The study of psychology, as a science, teaches people about the discipline of scientific research methods across the breadth of social, developmental, cognitive and biological psychology and the study of psychology as an art shows people how to look at others and see a kaleidoscope of emotions, motivations and desires.



4. About you

Tell us about your education history?

I left Beaumont School in St Albans at 16, with an O Level equivalent in drama.

I studied Theatre and Creative Arts at East Herts College from 16-18.

I went to the Guildford School of Acting to study dance and musical theatre from 18-21.

I studied A level Psychology at evening class while I was working.

I went to University as a mature student. I have a BSc in Psychology and English; I have an MSc in Neural Computation and a PhD in Experimental Cognitive Psychology.

What jobs have you had?

I was a professional dancer and I worked in musical theatre and dance shows. I performed in most of the UK's number 1 theatres (those are the big regional theatres), I worked as a dancer on a cruise ship and I worked in London at the Richmond Theatre. I loved being a professional dancer. Once I had all my academic degrees I worked in a range of UK universities. My post-doctoral post was at Cambridge University, where I was based at the Research Centre for English and Applied Linguistics. I've also held academic posts at the University of Greenwich (lecturer), Kingston University (senior lecturer) and at the University of Hertfordshire (Reader and Principal lecturer in the psychology of dance).

Are you a good dancer?

I try to be the best dancer I can be, but it's difficult as you get older. When I was a professional dancer I worried about being a "good dancer" but now I just want to enjoy dancing. I may not be able to jump in to splits, or turn six pirouettes perfectly anymore, but I thoroughly love the feeling of losing myself in dance.

What do you do in your spare time?

I have a family that keeps me busy and two sons, born 15 years apart, that keep me alert. And I dance, of course, as often as I can.



What does a normal week involve for you?

I teach Psychology at the University of Hertfordshire so I'm busy either giving lectures, running seminars or supervising student projects. I also run the Dance Psychology Lab and that involves supervising several research projects and PhD students. Part of my job involves the "Public understanding of Psychology" and for this I'm often out of the University giving public lectures in schools, museums and festivals and being interviewed for different TV and radio programmes. In addition to my academic work I try to make a new dance psychology stage show every couple of years, and for this I work with dancers and choreographers to find new ways of communicating psychology. And, of course, I attend dance classes three or four times a week. So, my week is fairly varied.

Tell us an interesting fact about you?

I overcame my reading difficulties in my early twenties and a thousand worlds opened up in front of my eyes.

What research are you working on at the moment?

I am working on a project to try and understand which aspects of dance lead to health-related benefits. I'm exploring whether there is a link between people's natural rhythm and whether dance can change the way they think, feel and behave. The artist in me thinks it might be all about feeling the groove, and my inner scientist understands the groove as "sensori-motor coupling". I'm currently running a couple of experiments to see how much people differ in the way they feel an urge to move when they hear particular pieces of music.



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