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Preparing for performance: Strategies adopted across performance domains

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Abstract

The ability to prepare effectively to execute complex skills under pressure is crucial in a number of performance-focused professions. While there is emerging evidence of best practice little research has sought to compare preparation strategies across professions. As a result, the aim of this research was to explore the approaches employed within a number of professions and whether there are similarities in the techniques and strategies adopted.

Participants were 18 ‘performers’, purposefully selected from sporting, musical, performing arts, and medical domains. Participants were interviewed individually to gain an understanding of each participant’s preparation strategies and the functions these strategies fulfilled. The data were thematically analyzed using interpretative phenomenological analysis.

Results suggest that there are similarities in both behavioral and mental strategies adopted across professions. Future research should seek to explore the transferability of developmental approaches.

Keywords: performance, pressure, preparation, mental skills
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Introduction

Effective performance under pressure is normally characterized by the consistent execution of complex motor skills in a flawless or near perfect manner (Singer, 2002). These performances are also characterized by an optimal mindset that keeps the performer focused on the task at hand at the expense of other competing stimuli (Cotterill, Sanders, & Collins, 2010; Gould, Dieffenbach, & Moffett, 2002; Kao, Huang, & Hung, 2013; Krane & Williams, 2006; Williams & Krane, 1993). One factor that has been consistently highlighted as determining the likelihood of effective performance is the way the individual prepares for performance. A particular approach that has been extensively reported as positively impacting upon performance is the use of preparation / pre-performance routines (Cotterill, 2011). These routines have been specifically characterized by Moran (1996) as “a sequence of task-relevant thoughts and actions which an athlete engages in systematically prior to his or her performance of a specific sports skill” (p.177). Indeed, a number of studies in sport have highlighted the positive impact that these preparatory routines can have on performance (Cotterill, 2011; Czech, Ploszay, & Burke, 2004; Douglas & Fox, 2002; Hazell, Cotterill, & Hill, 2014; Lonsdale & Tam, 2008; Mesagno & Mullane-Grant, 2010; Shaw, 2002). The use of routines to enhance performance is not just confined to sport research, other performance domains such as the performing arts (Čačković, Barić, & Vlašić, 2010; Clowes & Knowles, 2013; Vergeer & Hanrahan, 1998), and business (Burke, 2010) have also reported positive effects after adopting this approach. The existing body of literature relating to routines, which is heavily sport focused, advocates a number of potential ways in which these routines can aid performance. These include: providing an attentional focus and reducing distraction (Boutcher, 1992; Cotterill et al., 2010; Czech et al., 2004, Hazell et al., 2014); acting as a trigger for habitual behaviors (Boutcher & Crews, 1987; Moran, 1996); diverting attention...
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from task irrelevant thoughts (Gould & Udry, 1994; Maynard, 1998); enhancing the recall of
required physiological and psychological states (Marlow, Bull, Heath, & Shambrook, 1998);
preventing performers focusing on the mechanics of the skill (Beilock & Carr, 2001; Mesagno
& Mullane-Grant, 2010; Poolton, Maxwell, & Raab, 2008); and allowing performers to
evaluate the performance conditions and calibrate the required responses (Schack, 1997).
However, while many of these proposed functions appear intuitively appealing many of the
studies these recommendations and proposals are built upon have been questioned regarding
their design and applicability to real performance environments (Cotterill, 2010; Hazell et al.,
2014). To date little research exploring the use of pre-performance preparation strategies has
focused on the experience of the individual performer. Of the studies that exist only a small
number have asked the performer about their experience, and the number of participants has
always been limited. Cotterill (2011) presented a case study of two professional cricketers;
Cotterill et al. (2010) interviewed six golfers; Jackson and Baker (2001) conducted a case
study of one international rugby kicker; and Shaw (2002) presented a case study of a single
professional golfer. As a result, further investigation of the strategies and techniques used is
required.

The ability to perform under extreme pressure is a quality sought in many
performance domains, whether in the military, law enforcement, emergency medicine,
aviation, the performing arts, or sport (Vickers & Lewinski, 2012). Research conducted
separately across these domains suggests that the same cognitive processes are at work to
ensure that performers can execute their skills effectively under pressure (Burke, 2010;
Cotterill, 2013). As a result, understanding effective preparation to perform under pressure
across performance domains is crucial. Jordet and colleagues (Jordet, 2009; Jordet &
Hartman, 2008) reinforced this view when conducting research into the preparation time and
self-regulatory behavior of soccer players taking penalty kicks in international competitions.
They found that players who missed goals in the high-pressure situation had significantly faster preparation times and more escapist behavior (perhaps wanting to get the shot “over with”) than those who successfully scored a goal. This suggests that effective performance under pressure can be differentiated in the pre-performance period. This is further supported by studies that have focused on psychophysiological indicators during the pre-performance period in sport. Results from a number of studies have highlighted psychophysiological differences in the pre-performance period when comparing good and poor performance (Boutcher & Zinsser, 1990; Cotterill & Collins, 2004; Radlo, Steinberg, Singer, Barba, & Melnikov, 2002). Differences are also found when comparing expert and non-expert performers (Kim et al., 2008). For example, professional pianists and academy of music students have been shown to differ significantly in the time spent planning for performance, highlighting the importance of developing an effective mental performance plan (Miklaszewski, 1989). All of which suggests that the pre-performance period is crucial in underpinning effective performance under pressure.

Effective preparation for performance is crucial in helping the individual cope with the pressures and stress of the performance context. The maintenance of an optimal psychological state during the pre-performance period in particular has been highlighted as a key factor determining performance (Kao et al., 2013). Arora, Sevdalis, Nestel et al., (2010) highlighted that the operating room can be a highly pressurized environment in which surgeons encounter various stressors, including technical complications, equipment failure, time pressures, distractions, evaluative threat, and performance anxiety. In this environment it has been suggested that effective preparation is crucial in determining the surgeon’s ability to cope with these stressors (Arora et al., 2010). In particular effective preparation has been suggested to enhance the surgeon’s ability to cope with evaluative pressure, time pressure, and distractions (Arora et al., 2010). Although many skills and attributes are required to become a
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surgeon, the ability to make the most of these and apply them under pressure is clearly of
critical importance (McGrath, Moore, Wilson, Freeman, & Vine, 2011). This concept has also
been explored in sport with the impact of pre-performance routines on choking gaining
particular attention (Hill, Matthews, Scott & Fleming, 2010; Mesagno & Mullane-Grant,
2010)

While the importance of preparation to perform is recognized across a number of
performance domains (Broomhead, Skidmore, Eggett, & Mills, 2012; Burke, 2010; Cotterill
et al., 2010; Hammermeister et al., 2010) little research has considered the approaches
adopted across professions. This is surprising due to the increasing body of literature
highlighting potential links between different performance-focused professions. For example,
a number of contemporary authors have suggested similarities between the military and sport
psychology (De Wiggins, Hite, & Alston, 2010; Hammermeister, Pickering, & Lennox,
2010). Indeed, while acknowledging differences in the magnitude of stressors similar
preparatory techniques have been highlighted as being crucial in both domains (Janelle &
Hatfield, 2008; Ward, Farrow, & Harris, et al., 2008).

Despite the fact that the preparation period has been highlighted as being important
regarding performance under pressure (Vickers & Lewinski, 2012) there is still limited
research that has explored the most effective strategies that can be employed, and almost none
exploring the strategies adopted across different professions. Also, there continues to be very
little research that seeks to explore preparation from the perspective of the performer. As a
result, the aim of this research was to explore what approaches were utilized in preparing to
perform in specific domains, and consider whether these approaches could be successfully
transferred across performance domains.

Method

Participants
A homogenous sample was purposively selected for this study. This specific approach was adopted in accordance with Smith and Osborn’s (2003) guidelines for interpretative phenomenological analysis (IPA). The participants were selected based upon their experience as performers in the following four performance domains: sport, performing arts (acting), music (classical), and medicine (surgery). There were 18 volunteering participants as follows: five sports performers ($M_{\text{age}} = 29$ years, age range: 25 to 35 years; $M_{\text{experience}} = 16.25$ years range: 12.5 to 18 years); five performing artists ($M_{\text{age}} = 31.4$ years, aged range: 21 to 45 years; $M_{\text{experience}} = 12.4$ years, range: 1 to 34 years); four musicians ($M_{\text{age}} = 23.75$ years, range: 21 to 28 years; $M_{\text{experience}} = 15$ years, range: 9 to 18 years); and four surgeons ($M_{\text{age}} = 44.5$ years, range: 39 to 52 years; $M_{\text{experience}} = 14.75$ years, range: 9 to 20 years).

**Procedure**

The participants were interviewed to gain an insight into the approaches they adopted when preparing to perform in their particular performance domain. This study adopted a semi-structured interview approach as articulated by Smith and Osborn (2003) for conducting IPA research. The researcher developed a specific interview schedule for the study but this was used to guide rather than dictate the flow of the interviews. This approach is consistent with the phenomenological approach where the participants are considered the “experts” and it is the meanings that they associate with their experiences that is of interest to the researcher (Smith 1996). The specific process for developing the interview schedule adhered to the following four-step approach (Smith & Osborn, 2003) that involved the researcher: (a) thinking about a broad range of issues; (b) putting these topics in the most appropriate sequence; (c) thinking of appropriate questions relating to these areas; (d) and thinking about possible probes and prompts. Examples of interview questions include in this study include ‘How do you feel when you are preparing to perform?’; ‘In what ways does the pressure of the situation impact upon your preparation?’; How do you ensure that you are always ready to
perform at optimal levels?’. All the interviews, which lasted between 30 and 80 minutes, were recorded and transcribed verbatim to produce an accurate record of the conversations that took place. The interview transcripts were then returned to the participants to check the accuracy of the transcription process, after which IPA was used to describe the issues and meanings that were apparent from the participants’ interviews. Ethical approval for the study was gained via the University Research and Ethics Committee at the Institution where the author was resident at the time of the study. All of the participants opted to take part in the study by giving their informed consent.

Data analysis

The data were analyzed using IPA. The aim of this approach is to gain an understanding of the phenomena from the participant’s perspective (Nicholls, Holt & Polman, 2005). As a new and developing approach to phenomenological inquiry, IPA provides a clear set of thorough and accessible guidelines. IPA is not a prescriptive methodology and allows for individuality and flexibility of approach (Cope, 2011; Smith & Eatough, 2006). IPA is, however, systematic in its procedures, but whilst “there is a basic process to IPA (moving from the descriptive to the interpretative), the method does not claim objectivity through the use of a detailed, formulaic procedure” (Brocki & Wearden, 2006, p.97). IPA is emphatically inductive and idiographic, starting with a detailed, nuanced analysis of one case and then moving to the meticulous analysis of subsequent cases (Cope, 2011).

Through this process the researcher engaged in an “interpretative relationship with the transcript” (Smith & Osborn, 2003, p. 64). All transcripts were read a number of times so the researcher could become familiar with each participant’s account. Initial notes were made in the left-hand margin annotating anything identified as interesting or significant. As this process continued the right-hand margin was used to document emerging theme titles. These
initial notes were then transformed into concise phrases capturing the qualities of the points annotated. The next step involved the researcher making connections between the emergent themes and researcher interpretations (Smith & Osborn 2003). As these connections were made a clustering of themes emerged. Checks were made with the original transcripts to make sure connections still worked with the primary source materials. This step led to the development of a coherent table of themes. Once the transcripts had been analyzed by this interpretative process a final table of super-ordinate themes was constructed. These super-ordinate themes where then translated into a narrative account were the analysis subsequently became more expansive.

A non-foundational approach to validity as advocated by Sparkes (1998), where relativism is not considered an issue, was adopted in this study, as a way to enhance the “trustworthiness” of the study (Lincoln & Guba 1985). This was achieved through the use of bracketing and member checking (Cotterill et al., 2010; Nicholls et al., 2005). Bracketing involved the researcher keeping a reflective diary to help “bracket” personal experiences and consider the influence of personal values. Member checking involved verbatim transcriptions of the interviews being returned to the participants to check for authenticity and accuracy. Once the analysis process began, the participants were also contacted to clarify meaning where required.

Results and Discussion

The IPA analysis of the data highlighted six super-ordinate themes, which have been used to form the basis of the subsequent discussion. These super-ordinate themes are presented in Table 1. and include: preparation components – physical, preparation components - mental, influencing factors, preparation function, mindset, and technique development.

Preparation components – physical
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There was a general recognition by the participants in the study that normally their “preparation” involved some sort of specific and functional behaviors that were linked to the performance they were about to undertake. One example of this was participant six (Musician) who reflected that:

I find myself stretching my fingers a bit, and err so like knowing where my fingers are going so I, I struggle with some of my tuning occasionally so like making sure that I am picking out the notes, so when I get to play it I am confident of where I am putting my fingers, so . . . . err, so when I get there I would get my violin out check my bow, tune my violin up, then I would do a bit of scales, work my fingers out a bit then I might . . .

This was supported by participant ten (Athlete) who stated that:

I want my last glance at the target normally to be a long stare, or at least it appears to me that way, as I bring my eyes back to the ball I try and retain the image of where I am trying to send the ball. I keep that image in my mind, in my minds’ eye throughout the whole duration of the swing.

The inclusion of physical aspects to preparation was pretty consistent across the performance domains, even if the actual preparatory behaviors differed. There was a recognition with the participants across all of the professions that the feeling prior to performance was also important. If the performers felt physically ready there was, in their opinion, a greater likelihood of a successful performance outcome. For example participant two (Performing Artist) stated that:

You need to be able to reach that point where you feel that your mouth is working properly . . . . when you get tired as well with quite wordy lines you feel that you can’t speak properly and think that you really need to warm up your mouth at the last minute, but you know when you are not ready, it doesn’t ‘feel’ right.

This view was complemented by participant thirteen (Athlete) who reflected that:
Yeah, it [the feeling] is really strange to describe. Sometimes I get a feeling over a putt, if I feel comfortable then everything else just seems to fall into place. So again, the actual alignment is very important.

Linked to this notion of feeling is that of the rhythm of these movements, and how the movements felt in their execution and timing (Cotterill et al., 2010). The importance of rhythm was apparent for the participants in the study whose performance was characterized by rhythmic behaviors. For example participant eleven (Athlete) reflected that:

I use the one-two approach. Basically, it is because I find it a very good timing thing in putting... for me just like the ticking of a clock one... two... and also I find it good... especially for say shorter putts, when you are feeling a little bit nervous.

This notion of feeling ready has been highlighted as being particularly important when considering self-efficacy beliefs relating to performance. One of the reasons self-efficacy levels are of particular interest is because research suggests that higher levels are associated with more successful performance outcomes (Lane, Hall, & Lane, 2004; Moritz, Feltz, Fahrbach, & Mack, 2000). A key factor highlighted by Hays, Thomas, Butt, and Maynard (2010) in influencing efficacy beliefs was the way that the performer felt. In particular, the impact that the feeling of the movements prior to performance had upon the individuals’ confidence in their ability to perform the required task.

**Preparation components – mental**

While the physical aspects of preparation varied according to the particular demands of the task, there were similarities across professions in the mental preparation approaches adopted. Specific mental skills adopted by the participants from different professions in this study included positive self-talk, focusing strategies, visualization, and relaxation strategies such as controlled breathing, meditation, and yoga.
Positive self-talk was one of the techniques highlighted by participants as helping them to prepare for, and execute, their performance. One particular example of the use of positive or motivational self-talk was participant fourteen (Athlete) who reflected that when playing golf:

I sometimes say to myself ‘you are going to get this one’. Sometimes I gee myself up with a few little positive prompts and phrases. I usually find that I play quite well when I am just really, shall we say, cruising through it really, and I just say to myself very simple things.

Self-talk strategies are based on the use of cues that are aimed at enhancing performance, through the activation of appropriate responses (Hatzigeorgiadis, Galanis, Zourbanos, & Theodorakis, 2014). The use of motivational self-talk in the current study during the preparation period is in line with the findings of Hatzigeorgiadis, Zourbanos, Galanis, and Theodorakis’s (2011) meta-analysis of the self-talk literature. This analysis highlighted that for fine tasks instructional self-talk was more effective than motivational self-talk. However, for more gross tasks motivational self-talk was more effective. While instructional and motivational self-talk have been reported as being facilitative to performance contemporary sources are also questioning this claim (Tod, Hardy, & Oliver, 2011).

Another common set of techniques that were highlighted as important in preparing to perform related to providing a specific focus and helping concentration. Participant three (Performing Artist) highlighted:

I think the routine is focusing you in the warm-up, I would definitely say it is more mental than anything else, probably it is to do with . . . it is almost like a mantra some of it. You know it is about focusing on the right thing, so I suppose in a way it is stopping your mind whizzing off, the fact that the critics might write something about you, and you are going to be judged, and that.
Offering a slightly different perspective, participant five (Actor) highlighted how strategies to distract attention from the task can also be effective:

Yeah, this is interesting and this happens in the boy’s dressing room. We have a big male dressing room, boys dressing room. Actually I have given it away there. We are aged from 24 to 64 in there and it is all about sharing the dressing room. It is all about camaraderie and we are all like five-year olds, swearing and being disgusting and irreverent, and it is all about a childish sense of ludicrousness. I think there is a very immature male banter that goes on which is hilarious and fun but in a way forms a bond between us all as we are about to go on and do this slightly ridiculous thing you know. So there are displacement activities that go on for sure to trick the mind, to distract it.

The use of the pre-performance period to ensure an effective attentional focus, as highlighted in this study, is consistent with research that has focused on the development and implementation of pre-performance routines. The need to develop an effective attentional focus has been highlighted as fundamentally important by Cotterill et al. (2010) in their case study of elite golfers. This attentional function to preparation is also consistent with other research that has focused on the function of the pre-performance period, and in particular the routines and strategies adopted (Cotterill, 2011; Czech et al., 2004, Harle & Vickers, 2001).

Visualization was also seen as a key skill that could be used to prepare for the upcoming performance, or indeed the performance environment. Participant four (Actor) reflected that:

What I do really is visualization, It is something that really helps you, just before you go on your heart goes bang bang bang bang, mine does, for that I close my eyes and imagine a flame and just very consciously pull it back into a calmer, you know pull myself back into a calmer place, and that has really really worked for me in the last year. That is sort of a fairly recent discovery,
A slightly different perspective on imagery use was offered by participant twelve (Athlete):

I visualize the actual trajectory of the shot right up to it landing on the green. I am not . . . I don’t spend a lot of time trying to feel it I must say, I am more visual in a way, I see it rather than feel it.

These two quotes taken from sport and performing arts highlighted a difference in how imagery/visualization was perceived. This supports the findings of Nordin and Cumming (2005) in highlighting the different uses of imagery for performing artists compared to sport. This is also supported by Hays (2002) who highlighted both similarities and distinct differences in the use and conceptualization of imagery between sport and performing arts. In the current study parallels could be drawn between performing artists and musicians in their interpretation of imagery. Similarly, parallels could also be drawn between sport and surgery. This suggests there might be stronger links between some professions than others. The quotes suggest that the more ‘creative’ performers (actors/musicians) may use imagery more for motivational reasons (to calm down or get in the right state), and don’t use imagery for cognitive purposes (because everything is so well learned). On the other hand the more ‘functional’ performers (golfers/surgeons) appear to benefit from engaging in more cognitive forms of imagery. This build be because great rehearsal is required because the movements in these domains are so complex.

While some participants highlighted that visualization was a technique that they were taught or told about, some participants appeared to have organically developed their ability as a way to cope with the demands of the situation. For example, participant eight (Musician) stated that:

My mum visualizes very easily, not through any training or anything like that but naturally she would just do it and not with meditation you know. So I think that I have
always done it [visualization], but I don’t think I really employed it or understood what I was doing until later you know I think I went through my 20s much more stressed.

Imagery, and specifically visualization has been highlighted as an important technique applied in aiding performance in a number of domains including sport (Jackson & Baker, 2001; Short et al., 2002) surgery (Kosslyn, et al., 1993; Sanders, Sadoski, Bramson, Wiprud, & Walsum, 2004; Sevdalis, Moran, & Arora, 2013); and music (Hoffman, & Hanrahan, 2012). So it is not surprising that this strategy would also be adopted in the pre-performance period. This also fits with the guidelines developed by Singer (1988) for preparing to perform. Singer highlighted five steps with the second explicitly relating to imagining.

Another technique/intervention used across all four of the performance domains was the use of relaxation strategies. One approach adopted was meditation/yoga as highlighted by participant two (Performing Artist) who stated that:

It [performance] is always about the relaxation that you can find at the highest level when you are really performing. Those external factors going on just fade away. So, sometimes what I do add into my warm up is some sort of meditation sort of things or taking that rescue remedy stuff or some sort of lavender stuff that just sort of chills you out sometimes.

Indeed, this focus on relaxation appears to have formed a core aspect of the training for performers from the performing arts domain. This was highlighted by participant five (Actor) who reflected that:

I used to get so much more nervous. You start speaking faster when you are nervous as well . . . . most of the training was a lot of yoga, a lot of breathing, a lot of relaxing, and a lot of kind of focus work which is all really to stop you being nervous I think.
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Other key relaxation skills related to the use of specific breathing techniques. Indeed, these were seen as a quick, easy, and ultimately effective step to calm down, relax, focus, and think clearly. For example participant four (Performing Artist) reflected:

> A lot of breathing, a lot of making sure you don’t breath in the wrong place, they teach you this at drama school, that you breath throughout your body. You breath from your diaphragm you breath from your ribs, you breath in your chest and you breathe in your head and when you get nervous generally it stays in your chest and you go ‘I am really really nervous’ and that is the worst thing that can happen because the oxygen is not going everywhere so in the warm-up the thing that I would do is to make sure that I am definitely breathing from my center and yeah that nothing is trapped.

The importance of “just taking a deep breath” was highlighted as a crucial technique to focus, refocus, and to clear the mind in surgery. This was articulated by participant fifteen (Surgeon) who acknowledged that:

> Taking a deep breath is important. It is something I do before I start, as it helps me be to calm and focus . . . . I also use it as a quick technique in theatre as it is a good way to get back on task if distracted or something unexpected happens.

**Influencing factors**

A number of factors were highlighted as impacting upon the quality of preparation for performance. Some of these factors were also highlighted as being impactful during performance as well. Factors highlighted by the participants in this study included fatigue, experience, perfectionist tendencies, the process of aging, and the need to adapt to the environment and the task during real time.

Fatigue was highlighted as a particular factor impacting upon the quality of preparation and general preparedness for performance. Specific sources of fatigue highlighted included lack of
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sleep, and physical and mental fatigue resulting from engagement in performance. This is
highlighted by participant fourteen (Athlete) who stated that:

I can definitely remember instances because I obviously have started to get a little bit
tired, I failed to pick things up in the environment that I normally would of done. For
instance, like the direction of the wind. I have hit shots sometimes where I have hit a
lovely shot and the thing is twenty-five yards too big, then I have put the club in my bag
and I have just thought ‘I can’t believe you have just done that’ and I have actually
failed in my analysis and decision making process to take into account the direction of
the wind.

The impacts of fatigue on performance highlighted in this study are consistent with a number
of studies that have explored the effect of fatigue on cognitive performance (Kellmann, 2010).

Five of the participants highlighted the impact that the accumulation of greater
experience had upon their preparation. While they might have been taught a specific approach
this had often been adapted over time to meet their specific performance needs. There was
also a feeling that as they developed a greater understanding of their optimal performance
state they could then seek to prepare in a way that maximized the likelihood they would
achieve this state. For example, participant five (Actor) reflected:

I have noticed in terms of preparation, I think this comes with experience, we were
talking about it in the dressing room the other day, the younger actors all warm-up, they
all go out there and do lots of vocal warm-ups, about three years into my career I played
a massive Shakespearian part and I was doing lots of warm-ups, but I realized that
actually the warm-ups were not helping me to relax and I realized that I was better and
more relaxed after a late night with some red wine and a good nights’ sleep and just
coming in and doing it than doing any kind of warm-up with tension.
These changes over time, and with the development of enhanced experience, could reflect models of expertise development where performers move through qualitatively different stages (Baker, Koz, Kungl, Fraser-Thomas, & Schorer, 2013; Côté, Baker & Abernethy, 2007). Parallels could potentially be drawn with time-constrained decision-making sports such as tennis and squash where cognitive and perceptual adaptations take place to utilize more advanced cues and to anticipate more effectively (Mann, Williams, Ward, & Janelle, 2007).

There was also a view amongst the participants in the study that while you might prepare as well as you think you can, there was always the potential for something unexpected to happen that would knock you out of your stride. When this happened it was acknowledged that live adaptation was a crucial skill to be able to solve the problem as quickly as possible and to settle on an effective course of action. This point was highlighted by participant five (Performing Artist) who stated that:

I have a few stories when people sort of mess-up on stage, we all do it, on press night that happened and someone put a line in where it wasn’t supposed to be. Part of your brain goes, and the whole of your body fizzes just for a second where you have to completely change what you have been doing. You either have to make something up, or you have to ignore it and move on or whatever and it is just so live it is nice, I really like that.

This view was also reinforced by participant seventeen (Surgeon):

Sometimes things happen that you were not expecting, but you just need to be able to make unemotional decisions . . . . what is the best action to take to resolve the issue . . . . you have to forget it is a person and just be cold and detached . . . . you know, what is the problem and what is the best solution!

Similarly, this was also highlighted by participant nine (Musician):
A lot of the time no one will say, but you are the picky one that know it should have been an F sharp and you have played an F natural, and you would know the little things like you didn’t hold that note for long enough, but I think it comes with being a musician, because you just always want to get better. I have been taught to never stop if you make a mistake, always keep going, and the audience probably won’t know that you made a mistake, then evaluate afterwards.

The ability to adapt during performance to unforeseen issues or changes that arise was highlighted by Cotterill (2014) as a crucial aspect of decision-making for performance. It has been suggested that expert performance occurs at the limits of human performance, with the time constraints having a significant impact upon perception and action (Müller, Abernethy, & Farrow, 2006). Often when the unexpected occurs the ability to rapidly re-select an appropriate solution to the presenting problem separates the very best from the rest (Johnson & Raab, 2003; Payne, Bettman, & Johnson, 1993).

The participants in the study also acknowledged that the way they viewed their performances, and as a result the way they prepared for them, had changed over time. Particularly as they had advanced in years. For example participant four (Actor) reflected that:

I think that it gets slightly worse as you get older. You have more to do so there is more pressure on you and you feel more responsible for it [the performance] and you understand it in a slightly different way, I also think you also have the memory of so many different things, you know so many things that can happen, and there is kind of an innocence of youth and a sort of bravery that is slightly more cavalier. Also, having said that, I also think you have things in perspective a little better as you get older you know as people. My mother is very ill at the moment you know, perspective-wise, it is in a very different place. I am not going to die out there – hopefully!

Preparation function
While the participants utilized a number of similar techniques and interventions to prepare themselves to perform the perceived function that these strategies fulfilled was not uniform across all participants. Indeed, different participants highlighted the importance of their preparation strategies in enhancing their confidence (self-efficacy beliefs); as a warm-up; as a way to facilitate good performance by priming their relevant movement patterns; as having a motivating effect; to get into character; and to oxygenate the brain. For example, participant one (Actor) reflected:

I think a lot of it is experience because what you learn from experience is faith in yourself, belief in yourself, the right to be there, that you can do it, that you have had things go wrong and you have learnt from that. I don’t know if it is something you can teach, I know some people have a lot of precocious self-belief don’t they? Actors are a curios mix of that, full of insecurity but also full of confidence and to some extent narcissism actors are a very strange bread of people.

This view was also supported by participant eight (Musician):

Yeah, it is like you are warming up your fingers, and when your fingers are going you are more confident in what you are playing, so you don’t have to worry about the notes.

All of these factors have previously been highlighted by domain-specific research in sport regarding the function of the preparatory period (Beilock & Carr, 2001; Beilock et al., 2002; Gould & Udry, 1994; Hazell et al., 2014; Marlow, Bull, Heath, & Shambrook, 1998; Masters et al., 2008; Mesagno & Mullane-Grant, 2010; Moran, 1996).

The view that the preparation is helping you to “get into character” ready for the performance was also shared across the professions. The most apparent and literal example of this related to the actors in the study. As part of their preparation they had to get into character ahead of the performance, to ensure that they took on the personality and behaviors of the character they were playing.
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There were, though, examples from other performance domains where this need to get into character was highlighted. One example of this was participant sixteen (Surgeon):

You, know . . . you just have to be more confident and know you can do it. You might have doubts beforehand, but you have to . . . its like flicking a switch . . . . once you step inside you have to believe 100% that you will be successful and know what to do!

Another important function of the preparation period highlighted by the participants in the study related to re-emphasizing why they enjoy what they do, and as a result reduce the perceptions of stress. For example, participant eighteen (Surgeon) reflected that:

It is about making a difference in peoples lives . . . . a job well done is great, but understanding the effect it has on the people involved is amazing. During the operations it is about being detached but afterwards it is good to appreciate the difference what you have just done can make.

This view was also highlighted by participant two (Actor):

I love the audience response . . . I love the sort of grittiness of being in a scene and firing lines at each other and being moved by that. I love moving people as well sort of to feel like you are powerful in generating emotion in people through something that you are doing on stage. It matters to people that you are telling a story that strikes a cord, there is a lot in there I guess but the buzz, the live element is exciting, it is when it is most exciting . . . . I suppose you have just got to remind yourself of that when you get nervous waiting to start.

The ability for participants to adopt a positive approach to their perception of the situation and their involvement in it appears to be an important factor. This is consistent with literature that focuses on motivated behavior (Schinke & Peterson, 2002). Having a clear motivation for continued involvement in the performance setting appears to be an important factor for continued engagement. This is supported by the conclusions drawn by Duclos, Peix, and
Lifante (2012) in a study of surgeons that highlighted that optimal performance cannot be achieved just through the accumulation of experience.

The final perception of a function that preparation fulfilled related to the oxygenation of the brain. There was a view, specifically within the acting participants, that getting oxygen to the brain was a crucial function of their preparation. There is a good scientific rationale for why increased oxygenation of the brain could aid cognitive performance (Endo et al., 2013), specifically relating to brains need for oxygen to perform cognitive tasks. However, it is not necessarily supported that this is achieved via yawning. With the actors in the study there appeared to be a widespread belief that yawning to enhance the oxygenation of the brain was definitely a positive function. This view was highlighted by participant five (Actor):

I think that relaxation is the key to acting anyway. Being kind of centered and I think the older and more experienced you get the more used to being in that state you are and you don’t need to engender it. There is another thing that I noticed yawning before I go on, and I used to think ‘oh no I am tired’. But actually I have read somewhere that is the brain oxygenating yourself because it knows it is about to go through something potentially testing.

While there is little evidence to support yawning as an oxygenation strategy, there is a link between brain oxygenation and yawning. For example, Burke (2013) highlighted a lack of oxygen as a precursor of involuntary yawning.

**Mindset**

There was a strong view amongst the participants in this study that ultimately their mindset had a big impact upon performance, and as a result getting into their “optimal mindset” was a key factor when engaging in preparation activities and strategies. In considering what their optimal mindset for performance was, participant two (Actor) reflected that:
Acting is like . . . you have to care and not care in the right way at the same time, so you have to care very deeply and concentrate but you also need to not care how you come across if you mess it up otherwise you have to, that is when you get tense and stiff, when you are trying to get things right, that stops you relaxing makes you second-guess yourself and definitely if we had been opening this at the national or something the occasion would have been more of a test.

In surgery, participant seventeen stated that:

Ultimately it is about delivering time after time after time. There is no margin for error . . . and if you let yourself you can get paralyzed by the pressure. But it is about knowing you have the skills, knowing what you need to do and then clearing your mind and just focusing on the task in hand . . . . one step at a time.

There was also a view that being calm under pressure was a key characteristic of a good performance mindset. This view was encapsulated by participant seven (Musician):

When you are in that moment the worst thing to do is to panic, we say in life that thoughts come to you, essentially it is passive in a funny sort of way if you get locked either physically or mentally that is when you get brain freeze, if you get soft and relaxed, and keep breathing crucially then that is the way that you find your way out of it , I am sure a surgeon would agree with that, it is about being calm.

The importance of adopting the right mindset is also supported in the performance psychology literature. For example Swann, Keegan, Piggott, and Crust (2012) highlighted the importance of flow states for elite performers under pressure. This is also supported by Broomhead et al. (2012) who highlighted the impact that a positive mindset can have upon musical performance.

**Technique development**
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The final main theme related to how the participants in the study had developed their preparatory practice, techniques, and behaviors. There were very distinct differences across the performance domains. For example, in sport the development of the preparatory behaviors and strategies appeared to be very ad-hoc. Often the techniques used were less functional and more as a result of literature the participants had read that related to their sport. For example, participant twelve (Athlete) reflected:

Yeah, I read a book about four or five years ago by Bob Rotella called putting out of your mind and basically he does not talk at all about the [golf] swing, doesn’t talk about the mechanics or anything, it is just about psychological pre-shot routines. That is when my game absolutely turned around, that made such a difference to my routine, and since then it is like a religion . . . . he is like god! Yeah, I completely trust everything he says.

There was also a split amongst the acting participants. For those who had gone through a structured training programme to develop their skills (such as stage school) they had been taught specific techniques and strategies as part of their training. For example, participant four (Performing Artist) stated that “Yeah I was taught them at drama school, I think I would say that most of them, the training is teaching you not to be nervous and how nerves get in the way of it”

There were also a couple of the older actors who had not been through the same formal development programme. In the case of these individuals they had just organically developed their own approaches that worked for them. This was highlighted by participant three (Actor) who stated:

Yes, I was never taught because I started when I was 11. I never went to drama school so had no-one to help me and I think that all of them [younger actors] have been able to short cut a lot of those you know, someone might have told me something that might have helped much earlier on.
Finally, with the surgeons in the study the specific preparatory techniques adopted appeared to have developed out of necessity. This occurred almost through a “backward chaining” approach where the relevant participants developed an understanding of “how” they needed to be in order to perform at an optimal level and worked backwards from there (Foster, Weigand, & Baines, 2006). While this can appear to be functional it is potentially less effective that a deliberately planned approach.

**Conclusion**

The aim of this research was to explore the techniques and approaches applied across a number of performance domains. While the physical strategies and techniques differed across domains there was a high degree of similarity regarding the mental preparation strategies employed. While the physical requirements appeared to be more context specific, the mental demands, and as a result preparation strategies, appeared to be far more consistent. This suggests that good practice regarding mental preparation in one domain should be transferable to other performance domains. It was also interesting to note that there appeared to be stronger links in some aspects of preparation between some professions. The use and experiences of imagery were similar between the performing arts and musicians, and between athletes and surgeons. There were strategies adopted across all domains including self-talk, focusing strategies, and relaxation techniques. The sharing of approaches and developmental strategies could offer performance benefits through innovation and access to strategies currently under utilized in some professions.

A real strength of this paper is the focus adopted. By exploring and contrasting the experiences of performers across different domains the study offers a different perspective on the psychology of performance. Indeed, appreciating the fact that some performance domains appear to be more closely aligned than others is an important outcome. Building upon these outcomes this study points towards the potential for the sharing of techniques and approaches
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between different domains. This in turn can help to foster dialogue that will seek to enhance performance and potentially reduce the time required to achieve the relevant levels of expertise.

While this study presents a depth of information regarding the experience of the participants it is recognized that a sample of 18 across four different domains is still quite small. As a result, further related enquiry is encouraged that targets larger numbers of similar participants. Future research should continue to compare and contrast the experience of performers across pressured domains to seek to understand the transferable lessons that can be learnt. While the context may differ many of the psychological challenges remain consistent. Applied studies that seek to implement development programs based upon the lessons learnt form other performance domains should be prioritized.

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