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## To be or not to be (e)sports? That is not the question! Why and how sport and exercise psychology could research esports

Interest in esports has increased substantially over the past decade, from both applied and scientific perspectives (e.g., Cunningham et al., 2018; Pluss et al., 2019). Briefly, esports can be defined as an individual- or team-based competitive activity including ranking systems on both amateur and professional levels (Pedraza-Ramirez, Musculus, Raab, & Laborde, 2020).<sup>1</sup> At its 8th Olympic Summit, the International Olympic Commit-

<sup>1</sup> While every esports game is a video game, not every video game is referred to as esports (for an overview of esports games see Pedraza-Ramirez et al., 2020, p. 3). Video games must meet the following criteria to be classified as esports: structure (e.g., standard rules), organization

*“To be or not to be (e)sports? That is not the question!”* Books have been written and lectures have been given based on this most famous monologue. We adapted the most famous phrase from this monologue to illustrate the point that indecisiveness and inactivity is the result of asking the wrong question. Shakespeare’s Hamlet struggles with the question of whether to live with the pain of knowing his uncle killed his father and is now in bed with his mother or to end his suffering by killing himself. Literary critics and philosophers have often claimed that “to be or not to be” is actually *not* the question. In fact, it is the wrong question as it only allows a choice between two things. A better question, also from a psychological point of view, might be “why and how to be,” since this changes the focus of possible answers. Having this idea in mind, we want to illustrate that asking other questions might lead to different answers and different opportunities.

tee (IOC) agreed to promote Olympic sports and values in esports and gaming (IOC, 2019). While the IOC acknowledges esports and its communities, scholars question whether esports indeed constitute sports per se (e.g., Holden, Kaburakis, & Rodenberg, 2017).

The German Olympic Sports Confederation (DOSB, 2018) recognizes esports’ importance for youth, but does not acknowledge it as an independent sporting activity. Beside this organizational statement, various researchers have applied legal frameworks including a number of different criteria of sports (e.g., Holden et al., 2017; Parry, 2020; Thiel & John, 2020), draw upon data-based classifications (e.g., Raue, Dreiskämper, & Strauss, 2020), or adopted linguistic-philosophical perspectives (e.g., Schürmann, 2019; Willimczik, 2019) to examine whether esports can be classified as sports.

So far, it remains uncertain whether esports are in fact sports. Researchers are encouraged to find a science-based answer; however, solely focusing on this debate deters scholars from more detailed examination of esports. In turn, refraining from research on esports might result in important missed opportunities to

(e.g., rule adherence), and competition (e.g., Funk et al., 2018). For example, while The Sims is a video game, it is not considered an esports game due to its non-competitive nature. This is contrary to League of Legends, which is both a video game and an esports game.

contribute, guide, and shape this field in academia and to translate this acquired knowledge to practice. Accordingly, an increasing number of researchers are calling for more research in esports (e.g., Campbell, Toth, Moran, Kowal, & Exton, 2018; Funk, Pizzo, & Baker, 2018; Heere, 2018; Pluss et al., 2019; Wagner, 2006)<sup>2</sup>. Sport and exercise psychology (SEP) researchers recently highlighted the need for research on esports (e.g., see review by Leis & Lautenbach, 2020; Pedraza-Ramirez et al., 2020).

SEP is an interdisciplinary research field that leads to a unique position of approaching esports. In detail, SEP is a scientific discipline that derives and integrates concepts and knowledge from its parent sciences, namely psychology and sports sciences. Raab (2017) illustrated the relation of disciplines, areas of investigation, and impact potential within science (e.g., sports science, psychology, and performance science), sport (i.e., health and performance), and society (i.e., mind and motion, humans and technology, and sport and policy) in SEP. The broad expertise across many psychol-

<sup>2</sup> Similarly, researchers have called for more research on areas such as serious games (e.g., Bellotti, Kapralos, Lee, Moreno-Ger, & Berta, 2013; Wouters, van Nimwegen, van Oostendorp, & van der Spek, 2013), digital game-based learning (e.g., Talan, Doğan, & Batdı, 2020), and videogames (e.g., Murphy, 2009).

logical fields including, but not limited to, performance, education, cognition, social processes, human development, and health, as well as the interdisciplinary experiences in areas from medicine, human movement science, sociology, and cultural sciences suggests that SEP is in a unique position in comparison to other scientific disciplines. Of course, this does not imply that SEP needs to research esports, but it underlines its suitability for this purpose, especially in view of the fact that esports has certain parallels to traditional sports (e.g., Holden et al., 2017).

While SEP research has been influenced by socio-cultural changes in the past (e.g., the Olympic movement and the popularity of professional sport; Gould & Voelker, 2014), predictions for the year 2050 suggested that the discipline will become more infused with technology and will witness the application of (performance) knowledge to other areas such as actors and even the military (Raab, 2017). As early as 1994, Hardy and Jones acknowledged that future research should cross traditional boundaries that exist between the different domains of sport psychology to address issues such as effects of stress and its impact on control of actions, effects of psychosocial factors and their impact on motor learning, as well as the role of the sport psychologist (Hardy & Jones, 1994). Based on these arguments and invitations, for example, to cross traditional boundaries, we will address: (1) why and (2) how SEP could embark on research of esports. The opportunities and obstacles facing sport psychological research of esports will then be addressed.

## Why sport and exercise psychology could research esports

### Effects of playing esports

Recently, Yin et al. (2020) highlighted a lack of knowledge on esports and health, such as short- and long-term health issues related to playing esports. While good mental and general health in esports players has been reported (Rudolf et al., 2020; Trotter, Coulter, Davis, Poulus, & Polman, 2020), Kocadağ (2020) showed

significantly lower levels of psychological well-being in professional esports players compared to non-esports players. Collectively, these studies acknowledged the need for more research and specific health promotion strategies. Since SEP (among others) has a responsibility for well-being, as well as the attainment and maintenance of health (e.g., FEPSAC, 1995; Sudeck & Seelig, 2019), gaining an understanding of potential health risks and benefits is needed to fulfil this task and develop evidence-based guidelines and intervention strategies. For example, SEP would benefit from experts researching potential negative health effects of esports such as inactivity and obesity.<sup>3</sup> On the other hand, recent research (Toth, Ramsbottom, Kowal, & Campbell, 2020) has highlighted the idea of the positive effects of physical activity on cognitive aspects of esports performance (i.e., attention, memory, information processing, and task-switching). In other words, esports players might increase their level of physical activity in order to perform better in-game. Therefore, understanding the psychophysiological impact of playing esports in general (e.g., Leis & Lautenbach, 2020), and thereby the stress and strain esports players experience, as well as the bidirectional link between cognitive (e.g., working memory and cognitive flexibility) and in-game factors (e.g., competition and affect) on performance (e.g., Pedraza-Ramirez et al., 2020), is relevant. In a different vein, a positive effect of playing esports has been reported on cognitive processes (i.e., inhibitory control; Pedraza-Ramirez et al., 2020). Further research could expand on these findings and investigate the effects of playing esports (e.g., football simulation) on cognitive and motor skills in traditional sports (e.g., Murphy, 2009).

Finally, the effects of playing esports on social aspects, which can be considered prevalent for well-being (e.g.,

Chu, Saucier, & Hafner, 2010), is relatively unknown. Even though studies have reported positive effects such as receiving social support (e.g., Freeman & Wohn, 2017; Trepte, Reinecke, & Juechems, 2012), little is known, for example, about how esports add opportunities for developing communication and a team environment (e.g., Murphy, 2009). Research could investigate and address this way of connecting to other people within a competitive setting.

## Benefiting theory and human expertise

Esports studies allow SEP to test existing theories and models and adapt these to new populations and/or situations of competitive and cooperative activities. On the other hand, this application of theories can add and extend existing knowledge in esports (e.g., Murphy, 2009). Campbell et al. (2018) highlighted perceptual, cognitive, and motor expertise domains within esports that might benefit our understanding of factors behind expertise. For instance, according to Campbell et al. (2018), expertise among different cognitive facets can be quantified by investigating brain activation patterns during gameplay. Knowledge gained from the exploration of expertise can be used not only to understand psychological aspects in esports, but also to inform research initiatives and understand how individuals in general might benefit from it (e.g., Campbell et al., 2018). Pluss et al. (2019) also emphasized the potential of esports research to further advance research on the development and assessment of human expertise. For instance, perceptual-cognitive expertise (e.g., anticipation and decision-making) in traditional sport is difficult to assess within a laboratory setting under standardized conditions, since these settings might not effectively capture the constraints of the real-world environment (Afonso, Garganta, McRobert, Williams, & Mesquita, 2012; Williams & Ericsson, 2005). As a result, laboratory settings might also cause even experienced performers to use different information or strategies to solve tasks (e.g., Abernethy, Thomas, & Thomas, 1993).

<sup>3</sup> According to recent predictions about the SEP in 2050 (Raab, 2017), obesity as well as an older/aging population is one challenge Western societies will face in the future. This becomes even more relevant, since the current younger generation, who is largely involved in video games (e.g., Rudolf et al., 2020), will constitute this older/ageing population in the future.

In other words, researching esports can add value to SEP by providing representative tasks that correspond with the real-world environment of esports and by performance that can be programmed, standardized, and used in laboratory settings (e.g., Pluss et al., 2019).

### Interdisciplinary research

Incorporating knowledge across sub-disciplines (e.g., psychology and sports sciences) is more integrative, generates new knowledge in a more holistic way, and enables researchers to understand specific problems such as (sport) performance (e.g., Morillo, Bordons, & Gómez, 2003; Piggott, Müller, Chivers, Papatuca, & Hoyne, 2019). Whereas the majority of studies from sports science addressed esports' potential to be considered sports (e.g., Hallmann & Giel, 2018), research in cognitive science and psychology has primarily focused on performance and (cognitive and behavioral) effects of playing esports as reported in a recent review (Reitman, Anderson-Coto, Wu, Lee, & Steinkuehler, 2020). Current research has started to integrate perspectives of both fields (sports science and psychology), for example, by addressing the psychology of (cognitive and game) performance in esports (see review by Pedraza-Ramirez et al., 2020) and psychophysiological stress in esports (see review by Leis & Lautenbach, 2020).

### Informing evidence-based interventions

Given that professional esports players need to perform on a high level (see Pedraza-Ramirez et al., 2020) and develop specific skills and abilities (e.g., Himmelstein, Liu, & Shapiro, 2017), players would benefit from evidence-based interventions (e.g., Cottrell, McMillen, & Harris, 2019). An increasing number of sport psychologist consultants are currently entering the field of esports (e.g., Smith, Birch, & Bright, 2019), and some researchers argue that sport psychologists should be an integral part of any esports team (e.g., García-Lanzo, Bonilla, & Chamarro, 2020). In fact, evidence-based knowledge of health and

performance specific to esports is necessary to ensure ethical standards and provide for competent and conscientious behavior (e.g., German Society for Sport Psychology e.V., 2020; Association for Applied Sport Psychology [AASP], 2011). In summary, scientific knowledge is necessary to provide specific and appropriate diagnostic, therapeutic, teaching, research, educational, supervisory, and other consultative services. Scientific knowledge could be gathered by SEP researchers that work with applied sport psychologists in the field of esports. In this way, SEP researchers, sport psychologists, and esports practitioners could benefit from a cross-fertilization of knowledge.

### Teaching

From a research point of view, esports case study material could be used to teach topics such as cognition, communication, and group dynamics and, thus, enhance university teaching in SEP. These new learning opportunities might have appeal for the current and next generation of college students (Funk et al., 2018).

Within sport and physical education, discussions seem to refer more to pedagogical beliefs than to an analysis of possible fields of application (Hofmann, 2019). Even in regard to justified criticism (e.g., Borggreffe, 2019), it seems appropriate to not only think about how to prevent adolescents from participating in esports, but to have a reflective discussion about risks and opportunities of esports. Of course, esports should not replace traditional sports (e.g., in physical education), but it could be considered as a tool to approach otherwise hard-to-reach young adults (e.g., Gurr, Kaiser, Kress, & Merchel, 2016), raise their awareness of potential risks (e.g., Hofmann, 2020), and support them in creating a healthy living environment (Schaal, 2020). It also seems necessary to involve the young generation in the decision-making process.

### Not chasing research funding

In general, research is a process of discovering and advancing human knowledge,

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### Abstract

Whether esports can be considered a sport is highly debated. The German Olympic Sport Federation (DOSB) and the German Society for Sport Sciences (DVS) recently stated that esports should not be integrated into the canon of sport. Our aim is not to further fuel this debate but rather to argue that *to be or not to be sport* is not the most important question from a scientific perspective. After summarizing the current discussion on whether esports constitute a sport, this paper discusses why and how sport and exercise psychology (SEP), in particular, could research esports. To exploit research opportunities in esports, such as adapting validated methods and testing existing models, scholars in SEP could examine the aspects arising from its positional stance. We argue that the potential of SEP approaches, models, and methods, positions it well to play an important role in research on esports. The present perspective provides a starting point for a constructive discourse on the development of SEP and the potential for its role in esports research.

### Keywords

Sport psychology · Video games · Science · Expertise · Cognition · Performance

and financial support should be neither an argument for or against research in esports. However, there are arguments that research of esports drains financial resources that could be allocated to research on traditional sports and exercise (e.g., Borggreffe, 2019). As argued above, there are good reasons to conduct research on esports and thereby add value to SEP. Perhaps esports research should not be seen as a drain on current funding but rather as an opportunity that could offer SEP researchers additional, supplemental income from research funds and grants to enhance human knowledge.

**Table 1** Sport and exercise psychology (SEP) topics, their possible applications within esports, and added value for SEP by transferring them into esports research (incomplete, adaptable, and debatable)

SEP topics	Application within esports	Potential added value
Cognition	Attention and neurocognition Learning and memory Decision-making Embodied cognition Investigate short- and long-term effects	M: Better operationalization through the specific setting, for example, embodied cognition A: Providing (cognitive) skill training for athletes by using esports to benefit their competitive performance
Motivation	Intrinsic and extrinsic motivation Role of attribution in esports Dynamics of motivation	T: Understanding dynamics of motivation in short-term careers and lack of education to also inform strategies for retiring athletes in traditional sports T: Some esports require players to stay motivated for hours, which might provide new insights into the role of motivation in sports
Emotion	Factors impacting emotions such as type of esports, game environments, modalities, and social environments Stress-performance relationship Coping strategies	T: Testing theoretical models such as the individual zones of optimal functioning model and deepening our understanding of the stress–performance relationship (in prolonged exposure to alternating tasks and intensities) M: Gaining knowledge on psychological processes influencing cognitive and motor performance due to the possibility to exclude effects of gross physical activities
Personality and development	Personality development through esports Career development within esports Relationship between personality traits and various personal, interpersonal, and social behaviors in individual and team competitions	T: New insights into parental influence on the development of personality and choice of sport/esports activity T: Investigating one's ability to adapt to continuously fast-changing settings (e.g., rules, team-mates) M: Assessing skill development in a more controlled setting, for example, with less influence of relative age effects
Social processes	Leadership and decision-making style Influence of group cohesion and social support upon performance and other related variables	T: Understanding the development of different roles within teams that have, so far, been little influenced by scientific research M: New options in manipulating and testing the effect of the presence of others on performance (e.g., co-player/opponent absent/present etc.) A: Providing adequate tools and structures to help players and coaches, for example, as coaches lack specific education
Performance	Identifying performance indicators Motor and cognitive demands across different esports Factors that influence adherence to psychological skill training Development of specific esports measures to understand performance Psychological skills training and programs	M: Contributing to current knowledge on situational factor changes and the effects on performance in a given situation through tracking in-game performance data A: Informing intervention strategies and providing for competent and contentious behavior of sport psychologists
Health and well-being	Mental health Burnout and overtraining Injury Clinical issues such as addiction, eating disorders, and substance abuse Moral development (e.g., first-person shooter)	T: Understanding how mental health is influenced more closely, for example, by (social) media A: Researching the sedentary activity could inform intervention strategies for traditional athletes and employees in their everyday life
Environment	Coaches Audience and (social) media Diversity and inclusion Investigation of the various roles that might need to be assumed by the effectively practicing sport psychologist	T: Informing theoretical models by researching the influence of digital vs. actual presence of coaches/audience/media T: Understanding the role of esports players as influencers and their impact on followers, thereby informing athletes and strategies in traditional sports

Basic concepts are based on English (Papaioannou & Hackfort, 2014; Weinberg & Gould, 2018) and German textbooks (Schüler et al., 2020; Munzert et al., 2020)  
*T* Theoretical potential added value, *M* methodological potential added value, *A* applied potential value

### How sport and exercise psychology could research esports

A recent position paper in the field of sports science (dvs, 2019) has highlighted 10 challenges for researching esports, such as moral-ethical questions

(e.g., doping and addiction problems), sports medicine issues (e.g., acute and chronic health effects), as well as sport psychological questions (mental forms of training and action and behavior in esports). We agree with the provided research topics and will provide a more

detailed overview of potential research topics in esports especially for SEP.

As a starting point, recent reviews by Bányai, Griffiths, Király, and Demetrovics (2019), Leis and Lautenbach (2020), and Pedraza-Ramirez et al. (2020) highlighted future research as well as future research challenges in the field of sport psy-

chological research in esports. In detail, Bányai et al. (2019) suggested focusing on esports players' psychological vulnerability and identifying potential difficulties professional gamers might face, such as stress, coping, and problematic video game use. According to Leis and Lautenbach (2020), a better understanding of psychophysiological stress in esports is needed to inform evidence-based sport psychological interventions in the future. The authors addressed aspects such as identifying antecedents of critical turning points and comparing stress among different samples. In a similar way, Pedraza-Ramirez et al. (2020) summarized future research challenges facing the psychology of esports performance, such as identifying performance indicators and developing knowledge from biological markers. Traditional topics in SEP all offer relevant applications for esports (and vice versa). Traditional topics based on English (Papaioannou & Hackfort, 2014; Weinberg & Gould, 2018) and German sport psychology textbooks (Schüler, Wegner, & Plessner, 2020; Munzert, Raab, & Strauß, 2020) are shown in **Table 1**, as well as their relevant application in esports and the added value for SEP.

For purposes of illustration, if we consider the concept of personality and development (see **Table 1**) and focus on career development, little is known about esports players' career paths, nor the adaptation and transferability of skills during different transition stages (Pedraza-Ramirez et al., 2020). Additionally, esports careers are associated with a short career length (Ward & Harmon, 2019), decreased ability to rapidly and accurately respond to complex stimuli from the age of 24 (e.g., Thompson, Blair, & Henrey, 2014), and negative effects such as burnout (e.g., Salo, 2017). Early career paths are also associated with lack of education, which might make subsequent entry into the work force difficult following an esports career (e.g., Smithies et al., 2020). Therefore, it is important to understand what constitutes a career in esports, what influences career pathways, and how players can be supported before, during, and after a career in esports.

When considering relevant applications within esports, it has to be acknowledged that each esports game is different from the others and, thus, has different characteristics, for example, cognitive demands (e.g., Campbell et al., 2018; Pedraza-Ramirez et al., 2020). In other words, *League of Legends* should not be equated with *Counter-Strike: Global Offensive*, in the same way that soccer and handball are not the same. When researching esports, researchers should take different characteristics into account, for example, by comparing different esports games or focus only on individual esports (e.g., League of Legends) rather than whole genres (for an overview of genres and esports games, see Pedraza-Ramirez et al., 2020).

Finally, the overview is not exhaustive, but attempts to identify possible applications of sport psychological knowledge to the field of esports.

## Conclusion

This article addresses SEP's potential to contribute, guide, and shape this new field in academia and in the translation of research to applied practice. In order to benefit from esports and its opportunities, scholars in SEP need to focus on aspects beside esports' legitimization as a sport and be cognizant of both the opportunities and the obstacles in researching esports. However, it is highly likely that this article has not addressed every aspect. As such, it should be seen as a starting point for a constructive discourse on new developments and research avenues in SEP through exploring opportunities in esports research<sup>4</sup>. We would argue that SEP could take a leading role in the challenging task of exploring this new field of research. In doing so, SEP could benefit from: (1) adapting validated methods (e.g., in perception research and training); (2) drawing on knowledge and experience in spe-

<sup>4</sup> Other sport scientific sub-disciplines might have different standpoints including more/less reservations toward researching esports. We would also like to encourage them to (re)open discussions on researching esports within their domains.

cific research fields (e.g., on expertise and career development); (3) testing existing models and transferring them to esports (e.g., on team processes, motivation, etc.); and (4) comparing similar circumstances and their effects between comparable analog and digital settings (e.g., traditional football vs. virtual football). Therefore, researchers must acknowledge differing perspectives of the esports phenomenon (e.g., health, social psychological, expertise, socio-cultural, and also historical perspectives). In summary, SEP may cover even more areas of research in the future, but only time will tell. Researching esports should also not be seen as supporting the phenomenon, but as demonstrating openness to examinations on the subject (Heere, 2018). Let's not focus solely on discussing whether "esports is sport"—as Hamlet might have done—but let's use the time to tackle the emerging field of esports.

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