

„Critical Success Factors of Digital Sports Training Methods with an Example of Fitness Trackers “

Masterarbeit

zur Erlangung des akademischen Grades „Master of Science (M. Sc.)“ im
Studiengang Wirtschaftswissenschaft der Wirtschaftswissenschaftlichen Fakultät der
Leibniz Universität Hannover

vorgelegt von

Name: Minnig



Vorname: Maximilian



Prüfer: Prof. Dr. Michael Breitner

Hannover, den 30.08.2018

Table of Contents

List of Figures	III
List of Tables	IV
List of Abbreviation	V
1 Introduction	1
2 Basic Facts	3
2.1 Concept of Training.....	3
2.2 Training Science and Training Theory	4
2.3 Performance and Capability.....	6
2.4 Training methods.....	9
3 Digital Training Methods	11
3.1 Footbonaut.....	11
3.2 Social Media Platforms as digital training method with the example of “Hudl” ...	14
3.3 Video Analysis.....	16
3.4 Fitness Tracker	17
4 Big Data & Privacy	21
4.1 Big Data	21
4.2 Privacy.....	23
5 Literature Review	25
5.1 Literature analysis by Webster & Watson.....	25
5.2 Results of the literature analysis.....	26
6 Quantitative Analysis.....	29
6.1 Conceptual Basis and Hypothesis Generation	29
7 Research Design & Methodology	34
7.1 Survey Design	34
7.2 Measurement and Instrumentation	35
7.3 Research Model Construction	36
8 Data Analysis.....	37
8.1 Structure equation model and SmartPLS	37
8.2 PLS-SEM versus CB-SEM.....	39
8.3 Determination of quality criteria.....	40
8.3.1 Reflective Measurement Model	40
8.3.2 Structural Model.....	42
9 Results.....	44
9.1 Reflective Measurement Model	44
9.2 Structural Model.....	47
10 Discussion.....	49
11 Limitations & Recommendations for Future Research.....	54
12 Conclusion	57
Appendix.....	59

ReferencesVI

1 Introduction

“Fitness Trackers: healthy little helpers or no-good gadgets?”

Amy Fleming

This question was asked by British editor Amy Fleming (28th of September 2015) in the “Guardian”, referring to the use of fitness trackers in sport. Global changes in digitalization and training concepts bring new challenges for athletes in the actual competitions leading to the new methods to increase the performance of an athlete in terms of its competitors. Fitness trackers give the opportunity to follow all of an athlete’s activities. These personal data can be monitored and reflected with these kinds of fitness trackers.¹ For that most of the fitness trackers are little wearables like bracelets, watches or wristbands, which can be carried easily.² The sales of fitness trackers increased in the last years. In 2015 alone over 25 millions fitness trackers were sold.³ Digital training methods make it possible that performance can be captured easier and better with collected data. This allows a more individualized and targeted promotion of each athlete.⁴ In highly professional competitive sports, clubs are therefore becoming more and more creative in order to develop new digital training options or to optimize and expand existing infrastructures.⁵ The exemplary named fitness trackers are already in use in most of the professional clubs and athlete centers.⁶ But not only the professional area uses these fitness trackers, the private sector also use fitness trackers during their training sessions or daily life. The article of Budzinski & Schneider (2015) has a big impact on this master thesis when considering the fitness tracker as digital training method. The societal observable evolution to the “digital world”⁷ therefore affects sport not only in the more obvious areas of marketing, but also on an existential level in training. The digital training methods can be an alternative to traditional strength, endurance or coordination exercises and could thus provide a physical as well as mental change from the normal training routine.

The aim of the paper is to answer the question if fitness trackers are “healthy little helpers or no-good gadgets” and determine the critical success factors of digital

¹ See Yang et al. (2015) p. 1

² See Miller (2013)

³ Fleming (2015)

⁴ See Duttweiler & Gugutzer (2015) p. 29

⁵ See Julien Wolff (2017)

⁶ See McGrath & Scanail (2013)

⁷ See Bieber, Christoph et al. (2009) p.11

training methods especially from fitness trackers. They represent the main part of this master thesis and build the framework for the quantitative analysis. Thus, it is determined whether these digital training methods really contribute to a success and performance-oriented training, so that the training in the field of sports leads to increased performance, but also to the sustainable maintenance of health.

Section two sets out the methodological foundations through the definition of the terms training, training science, performance and training methods, followed by section three, which presents selected digital training methods in detail. Section four provides a literature review. Section 5 demonstrates the effectiveness and efficiency of digital training methods using a quantitative content analysis with the help of a survey. The sixth part discusses the critical results from part four and five and explains possible limitations. The seventh section concludes and provides an outlook for future research.

12 Conclusion

The paper had the goal to identify the critical success factors of digital training methods in the field of sport using the example of fitness trackers. Digital training methods are used to support and improve the training routine of athletes. The digital training methods are a support for the training operations of an athlete or club. Fitness trackers are usually small wearables that help to record and store data from sporting activities so that training analyses can be carried out later. The fitness tracker is the main part of this work and a survey was conducted to identify the critical success factors. These critical success factors were identified and analysed taking into account the limitations of this work.

A key feature of digital training methods is the collection of data to be used to make an athlete's performance more transparent. However, other factors must also be taken into account in order to evaluate an athlete's performance, such as human factors (personality of the athlete). The results of the survey make it clear that data collection is accepted and one reason to use fitness trackers, but the positioning by tracking services (GPS) are viewed critically. Collected data which is used later for analysis of training, is not seen as positive. The privacy concerns of users have a great impact on the usage of fitness trackers. It should be noted that people are not afraid of data protection in general, but that this fear only sprouts up when the effects of sustainable data collection are noticed. Masked factors, which could have influence on the usage of fitness trackers, should be determined in further research. Furthermore, the health aspect is worked out as a critical success factor for the use of fitness trackers. People care about their health. People use the functions of fitness trackers to monitor their physical data (such as heart rate, fat content or sleep duration). In addition, the wearables support sporting activities by encouraging their users to achieve health-promoting performance goals. The health aspect as a success factor also has the largest and thus most influential values in the analysis of the results on the use of fitness trackers. The third and last critical success factor for the use of fitness trackers is the nature of the fitness trackers. The characteristics in strength and shape of the wearables make the fitness tracker successful and usable in different situations (such as rain, snow, heat). Other factors which have surprisingly no influence on the usage of fitness trackers could apply as hygiene factors. Users await these factors (simplicity & availability) from fitness trackers. The analysis shows that the usage of fitness trackers has a significant and positive influence on the performance of athletes. The use of fitness trackers is therefore made successful by the factors mentioned above and has a significant influence on performance. Factors which are on first view a critical success factor could apply as hygiene factor, which shows that these factors are not significant. These factors are expected when buying and using a fitness tracker.

These critical success factors could be identified as the results of this paper. However, these critical success factors are subject to certain limitations, which were presented in the course of the discussion. Based on these limitations, recommendations for future research are given.

All in all, it becomes clear that fitness trackers are a suitable digital training method to investigate the question of this work. Nevertheless, it should be noted that the critical success factors that apply to fitness trackers are not generally applicable to individual other digital training methods and underlie many data security aspects, which play a big role in the connection with data collecting fitness trackers. These aspects could not be further illuminated, so there have to be further research to determine the effects of privacy concerns on the critical success factors of fitness trackers. In addition, it is shown that fitness trackers make a useful contribution to an athlete's performance.