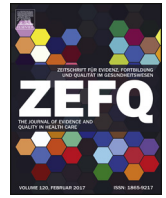




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Self-efficacy in Prosthetics & Orthotics students who did and did not participate in short term study abroad programs – preliminary results

*Selbstwirksamkeitsüberzeugung von Orthopädietechnikstudenten mit und ohne Auslandsstudienkurzaufenthalt – erste Studienergebnisse*Goeran Fiedler^{a,*}, Uta Kremer^b^a University of Pittsburgh, Department of Rehabilitation Science and Technology, Pittsburgh, United States of America^b Universität Leipzig, Institute for Computer Science, Digital Humanities, Leipzig, Germany

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ABSTRACT

It is conventional knowledge that travel is educational and that a study stay in a foreign country contributes to a student's personality formation and well-roundedness. The benefit of such experiences on attitudes that shape professional aptitude and career success may, however, be debated. It could be argued that exposure to experiences that are irrelevant to a student's chosen profession may have no sizeable impact – thus not justifying the invested time and money – or, in an extreme case, may even be detrimental to career success if the wrong conclusions are drawn. Examples for such occurrences may include the adoption of inappropriate belief systems, educational priorities, or work habits. In this study, it was investigated how a short-term study stay abroad was reflected in the self-efficacy of students and graduates of a professional Master of Science program. A cohort of U.S. American students of Prosthetics and Orthotics who had participated in non-compulsory study excursions to Germany and a comparable cohort of their peers who had not participated in such trips were asked to state their confidence in mastering specific hypothetical situations of daily work life. About one half of the subjects of each group had already graduated and were in residence at the time of the survey, whereas the remaining half was still in their first year of the study program. Answers were compared using descriptive statistics and qualitative analysis to investigate main and interaction effects of professional experience and short-term stay abroad. The results seem to support the hypothesis that the experience was beneficial, making the inclusion of respective course offerings recommendable.

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ZUSAMMENFASSUNG

Es ist gilt als etablierte Weisheit, dass Reisen bildet und dass ein Studienaufenthalt in einem fremden Land positiv zur umfassenden Persönlichkeitsbildung der entsprechenden Studenten beiträgt. Der Einfluss solcher Erfahrungen auf die Einstellungen, die für fachliches Training und beruflichen Erfolg wichtig sind, mag jedoch angezweifelt werden. Man könnte argumentieren, dass Erfahrungen, die irrelevant für das gewählte Ausbildungsziel sind, unerheblich sind – also Zeit und Geld nicht wert sind – oder, im Extremfall, sogar dem beruflichen Erfolg abträglich sind, wenn etwa die falschen Schlussfolgerungen gezogen werden. Dies könnte sich zum Beispiel in der Annahme von unangemessenen Überzeugungen, Bildungsprioritäten oder Arbeitsgewohnheiten niederschlagen. In dieser Studie wurde untersucht, wie ein Kurzzeitstudienaufenthalt im Ausland sich auf die Selbstwirksamkeitsüberzeugung von Studenten und Absolventen eines professionellen Master-of-Science-Programms auswirkt. Eine Gruppe US-amerikanischer Studenten der Orthopädietechnik, die an einer fakultativen Studienreise nach Deutschland teilgenommen hatten, und eine Kontrollgruppe Studenten, die an keiner solchen Reise teilgenommen hatten, wurden gebeten, ihr Selbstvertrauen bei der Bewältigung spezifischer

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hypothetischer Situationen des täglichen Arbeitslebens zu beurteilen. Etwa die Hälfte der Probanden jeder Gruppe hatte ihr Studium zum Zeitpunkt der Erhebung bereits abgeschlossen und ihr Berufspraktikum begonnen, während die andere Hälfte noch in ihrem ersten Studienjahr war. Die Antworten wurden mittels beschreibender Statistik und qualitativer Auswertung verglichen, um die Haupt- und Interaktionseffekte von Berufserfahrung und einem kurzfristigen Auslandsaufenthalt zu untersuchen. Die Ergebnisse unterstützen die Hypothese, dass die Erfahrung von Vorteil war, was entsprechende Lehrangebote empfehlenswert erscheinen lässt.

Introduction

Prosthetics and Orthotics (P&O) education has been the subject of numerous changes over the years [1]. In the United States alone, the profession has developed from a trade that required no formal degree toward a specialty that necessitates advanced academic studies (the current entry-level qualification is a Master's degree) in the span of a few decades. While similarly substantive changes were implemented elsewhere in the world as well, international differences between education systems often remain or have even widened. One example is Germany, where P&O education has been governed by the traditional trade and craft order that in its essence was established in medieval times: A trainee starts an apprenticeship in the workshop of an experienced "Meister" (Master Craftsman) and eventually attains the skills required to become a "Geselle" (a Journeyman or Bachelor of Crafts). Upon amassing a wealth of experience in the field, often after decades of practice, a Geselle may be pronounced a Meister and start his or her own business including the training of new apprentices to keep the cycle perpetuating [2]. In recent times, this traditional schedule has been updated to specify the duration of apprenticeship (3 years in P&O) and required work experience for the Meister title (minimum of 4 years). Theoretical training and exam expectations have been and are continuously updated to reflect technological advancements. Accordingly, apprentices must participate in frequent blocks of theory instruction that are interspersed across the 3-year training period and that are offered at vocational schools. Meister candidates often opt for a formal training course to prepare for the examination, which may be taken at a number of dedicated institutions.

The obvious differences between P&O education in the U.S. and Germany may inspire comparison to broaden the horizon in terms of possible improvements. It may be somewhat safely assumed that each approach works best within the given boundary conditions and business environments at the respective location. Accordingly, training credentials from the respective other country are not automatically considered equivalent to the ones locally issued. (The International Society of Prosthetics & Orthotics (ISPO) has addressed this discrepancy by establishing the Category 1 designation that has become an increasingly sought after "bonus" of any certification program.) Irrespective of any attempted ranking of education systems and credentials, it appears logical that both have their respective strengths and comparative weaknesses. Being familiar with both systems should therefore enable a practitioner to adopt the best of both worlds, as far as this is possible in the circumstances. A German student may benefit from some text books that are being used in the American university based study programs but are not part of the local curriculum. An American student, conversely, may deliberately embrace the "journeyman" concept and change workplaces frequently to further his or her professional experience before taking on a leadership position in a business.

The commonly perceived benefits of study abroad experience explain that interest in and vocal support for such programs are expected to increase as the implications of globalization become ever more tangible on an individual level. "International education is crucial to building relationships between people and

communities in the United States and around the world. It is through these relationships that together we can solve global challenges like climate change, the spread of pandemic disease, and combatting violent extremism" says Evan M. Ryan, Assistant Secretary of State for Educational and Cultural Affairs [3]. The benefits of being exposed to a diverse set of professional experiences have been investigated for a number of different populations and work areas. Respective studies and research are predominantly conducted in and for the business world [4–6]. While it is hard to rate any benefits in concrete numbers, prior research suggests that personal traits such as self-efficacy are sharpened. The concept of "[p]erceived self-efficacy is concerned with people's beliefs in their ability to influence events that affect their lives" [7]. Main sources of self-efficacy are learners' past performances, observation of how well others do, verbal persuasion from others, and somatic and emotional states [8,9]. It has been shown that study abroad experiences proved beneficial for a number of those mechanisms, as students get the opportunity to gain experience in conducting themselves in challenging environments and in comparing themselves to different populations. The effects on self-efficacy have been described for the areas of communication [10], independent working, and adaptability [11].

The authors are, however, not aware of studies that addressed the effects of short-term study abroad in P&O students or practitioners. Therefore, it was the purpose of the current group-comparison study to generate evidence on the hypothesized positive short- and long-term effects of a study excursion to Germany by American P&O students on participants' self-efficacy. The rationale for the hypothesis in this particular context was that exposure to the study-abroad experience provides participants with a more precise picture on additional individual possibilities within one's own cultural and professional setting. Such knowledge should be conducive to a constant improvement of the students' educational and work environment and pay back not only individually, but also for the whole program of study.

Materials and Methods

First-year students of a Master of Science program in P&O, based at a large American research university, were offered a non-compulsory educational trip to Germany. The excursions were between 1 and 2 weeks long, included the visitation of hospitals, fabrication labs, vocational schools, and industrial device manufacturers that are pertinent for the field of P&O. They were organized and lead by a faculty member with German P&O training, and they were funded by the students themselves. The first instance of the trip took place in the month of August 2014 and comprised of one week (Table 1). The second installment followed in the month of May two years later, thus addressing a different student cohort, and included the visit of an international congress and trade show for a total duration of two weeks (Table 2). Beyond the listed subject specific visitations, participants engaged in recreational activities that are usually associated with leisure travel, such as sight-seeing, food sampling, domestic travelling, and socializing with locals.

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