Different Students – Different Ways: Challenges of Integrating Non-traditional Students in Higher Education and How Electronic Learning Can Support Inclusion

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Abstract. The inclusion of non-traditional learners is an important challenge of higher education institutions. The paper presents a research project of Mittweida University of Applied Science Mittweida which investigated the special needs and challenges of two non-traditional student groups, student top athletes and part-time students with professional background. The paper will first present the results of a qualitative study with student top-athletes and students with professional background in order to analyze the conditions and challenges of their study programs and additional commitments. Non-traditional students were asked about their learning requirements and resulting challenges as well as their media literacy and attitude towards electronic learning. Organizational, social and didactic challenges were identified. Based on the results a blended learning design – the flipped classroom approach – is introduced. This approach has been implemented and tested within the framework of a class in scientific writing. Evaluation results show evidence that the developed approach met the needs of non-traditional students and supported inclusion.

Keywords: Higher education · Inclusion · Non-traditional students · Blended learning · Flipped classroom · Qualitative study

1 Introduction

The inclusion of non-traditional students' organizational, emotional and academic needs into higher education structures has proven to be comparatively difficult. Successful academic development requires guidance, counselling and time. Non-traditional students demand clear communication of expectations, study contents as well as learning methods and individual learning commitments.

According to Wang [18] "participation in postsecondary education represents one of the most viable pathways to economic and social success" (p. 301). Attending a higher education institution seems to be a beneficial as well as logical step for high school graduates. The number of students pursuing a postsecondary degree coming from different professional backgrounds has also steadily increased throughout the past [19]. Thus, The growing numbers of individuals entering higher education result in a

diverse learning environment characterized by diverse student learners, different levels of knowledge and different expectations of teaching and learning [2].

Having a closer look on the inclusion of non-traditional students into higher education as their new habitat seems reasonable since studies have shown, that students who do not succeed in enculturating to their study environment have a higher risk of dropping out than students who successfully master the integration process [5]. Student top-athletes (as one group of non-traditional learners) seem especially vulnerable to the challenges resulting from the constant balancing of two different 'worlds' – sports and academics.

College sports have been an essential part of Mittweida University's campus life for many years. Integrating sports' infrastructure, mass participation events and physical education classes into organizational structures and practices has been a pillar of campus diversity and has also become a vital part of students' social interactions.

However, the inclusion of top-athletes' organizational needs into educational curricula has proven to be comparatively difficult. Challenges for both parties – athlete-students and teachers – are obvious. Student-Athletes have to balance demanding training routines, time-consuming out-of-class activities (e.g. tournaments, world cups) on the one hand, educational requirements, inflexible schedules and exams on the other hand. University teachers are bound within an academic framework of course work, teaching and research productivity as well as external pedagogic target evaluations. Any kind of additional academic need is regarded as labor and time intensive, thus difficult to implement.

The discourse emerging from research on the inclusion of top-athletes into academic curricula, in particular, and non-traditional students, in general, seems to neglect such educational realities. Therefore, Mittweida University started a research project ("Promoting dual carriers of elite sport students through new teaching and learning cultures") that aims at presenting how educational needs of non-traditional students can be met. It outlines how Mittweida University effectively pursues and incorporates online teaching and electronic learning methods within the framework concept of Sustainability Education fostering academic success.

2   Empirical Study

The main research objective of the project was to analyze special needs and specific challenges of student top-athletes as one group of part-time students. The aim of the present study was to investigate the special circumstances such non-traditional students face while pursuing a dual career, managing their time between curricular and extra-curricular activities. The study aimed at creating innovative and integrative approaches acknowledging the special needs of non-traditional students.

The project followed four principles: After a basic analysis, we conceptualized a suitable learning scenario which correlated the students' needs. In a third step the learning scenario was tested and evaluated. From the evaluation results we derived didactical guidelines on how to include and foster non-traditional students. Electronic learning proofed to be a teaching and learning instrument that was accepted by all actors involved – teachers and students as well as higher education administration. The research project consisted of four main steps (see Fig. 1).
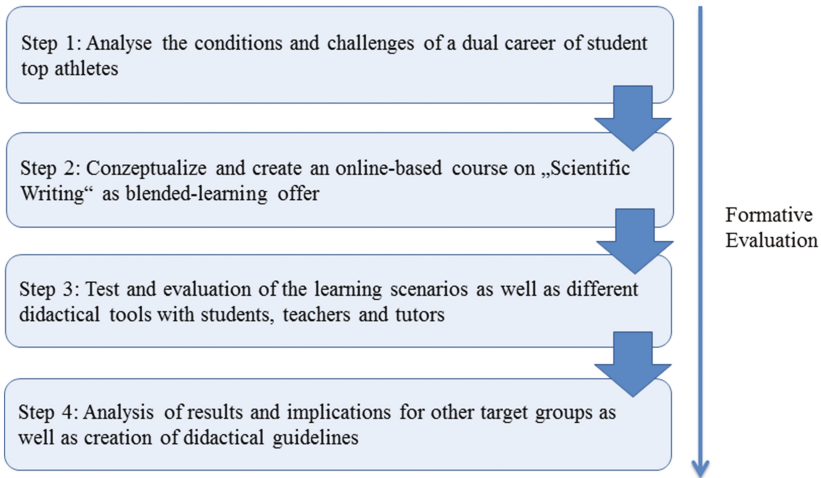
Fig. 1. 4-Step-Model of the research project

The integration of digital learning arrangements incorporates various teaching and learning methods, innovative learning environments as well as manifold learning locations. The consideration of many different key aspects that influence learning outcomes and their integration into didactic concepts and organizational processes eventually results in a higher rate of academic success of non-traditional students [8]. Due to the diversity of higher education institutions, the diversity of student and faculty bodies as well as the diversity of learning and teaching techniques, there can only be suggestions – a tool kit of instruments – that might improve certain aspects of higher education. The present study focuses on student top-athletes and their learning needs.

2.1   Research Design

In order to effectively address the complex aspects of learning needs of non-traditional students a cross-sectional research design has been chosen. The data collection has been based on qualitative research methods: the analysis of literature and existing studies as well as semi-structured interviews with student top-athletes. In order to compare the learning needs of that particular group of non-traditional students, a second group of students has been included as a case study: part-time students with a professional background. Research goals included the following scientific objectives: the identification of non-traditional students' learning expectations and needs as well as their learning and teaching preferences.

The faculty's expectations in teaching success and learning outcomes have to be taken into consideration as well since they are part of the framework requirements that influence students' academic success. We considered the following aspects as pre-conditions for the successful inclusion of non-traditional students:

(1) Students' personalities, expectations as well as experiences are considered as meaningful, thus chance for university didactic. Teachers ought to be sensitive in that regard.
(2) Diverse study groups with diverse learning and teaching knowledge require flexible curricular, e.g. learning environments, teaching methods or exam options.
(3) Flexible learning and teaching designs require transparency of expectations and their assessment.
(4) Flexible learning and teaching designs require guidance and time.

These aspects were not mentioned during the conducted interviews but served as key elements within the process of the data analysis. The interviewers focused on questions regarding study conditions and challenges, learning requirements and individual learning habits as well as individual preferences.

A rather small sample of 18 students was interviewed, however only 1% of Mittweida University's students are top-athletes. The same number of part-time students was interviewed and served as comparison group. All interviewees are currently enrolled in different study programs at Mittweida University and represent different levels of study – beginning students as well as advanced students, bachelor and master students.

The semi-structured design of the interview questions provided the necessary comparability of results [15]. The interview approach proved to have many advantages. It allowed the gathering of various general themes touching academic experiences of non-traditional students in general, and individual learning needs and preferences on particular.

The data analysis linked the advantages of quantitative content analysis (by using MAXQDA for creating thematic categories) with the qualitative-interpretative approaches of data analysis. The undertaken content analysis led to four main categories that influence academic success and learning outcomes of non-traditional students.

2.2   Results and Implications

The first subject area that could be drawn from the interviews focused on organizational challenges. 95% of all interviewed non-traditional students mentioned a lack of time for their academic obligations. Whereas student top-athletes particularly mentioned the constant struggle of balancing training, study and travelling schedules, part-time students with a professional background more often mentioned social commitments (childcare, daily routine, volunteering) as challenges to be considered next to their professional and academic obligations.

To meet the organizational needs of non-traditional students carefully structured timetables and exam schedules need to be created which should apply for the whole student body. That way, top-athletes and part-time students can take part in regular in-class activities and they can socially bond with their fellow classmates. In addition, regular students might benefit from the time management skills and high learning engagement of non-traditional students. However, the inclusion of part-time students

into academic and student life has so far be proven to be easier than the integration of student top-athletes. Especially the frequent absence from university in either summer or winter semesters – depending on the sports seasonal requirements – makes it challenging to follow regular study programs. That problem is closely linked to the second subject area that included social challenges non-traditional students face in the higher education system. The lack of communication to fellow students and faculty leads to a lack of information regarding curricular as well as extracurricular activities. The interviewed student top-athletes consistently mentioned integration programs from and with fellow students as instrument in order to foster their different 'worlds of obligations'. Part-time students more often mentioned the promotion of benefits that learning within diverse study groups comprises of. The support of faculty members and individual mentoring opportunities was considered of utmost importance by both non-traditional study groups.

The third and fourth subject area focused on learning requirements from a general as well as a student perspective. The lack of flexible learning options was mentioned by all interviewed students. The curricular requirements in regard of exam dates and exam methods often times cause problems. The lack of teachers' support is also considered a major hurdle for individual learning progress. There have been two different ways of assessment. The larger group of interviewees considered the lack of support by the faculty as challenge, whereas the other group considered the special attention of teachers (especially during class) a challenge which – on the one hand, fostered their learning success – but on the other hand hindered their integration into the class and the communication with fellow students.

The lack of innovative learning methods that would enhance continuous learning processes for non-traditional students was mentioned repeatedly in all interviews. Whereas in-class learning is often accompanied by an information overload, self-learning opportunities are too scarce. The inability or missing awareness of teachers to adapt their teaching content for electronic methods was considered an aspect of frustration, especially within the group of student top-athletes.

The fourth subject area focuses on such challenges. The lack of technical support for electronic learning, the low level of instruction and feedback by teachers as well as the electronic requirements (web access, mobile access options) that are often times unrealizable when absent from university. These aspects were diversified discussed and raised a higher awareness among the group of student top-athletes who face the technical problems on training and competition sites more often than part-time students. However, part-time students more often mentioned the lack of instruction and self-assessment opportunities in order to follow individual learning progress.

Electronic learning instruments were considered the most effective tool in order to enhance individual learning opportunities. One interviewee mentioned that "for athletes there is nothing better than that. When I cannot attend regular lectures, it would be great to have videos of the lectures that I can watch when I have time. I could watch a lecture that was held in the morning in the evening after my training session. There are hardly any better solutions for athletes than that." A part-time student mentioned that it would be helpful to revise the online materials again in class: "When you prepare yourself with the learning material that is available for the course and you read everything and

then you attend the lecture afterwards and discuss the learning content and ask questions. That is the best case."

The following table provides an overview of the topic areas and the related variables (see Table 1) that were mentioned by the non-traditional students.

Table 2 includes possible didactic solutions for the challenges presented before. Based on the data assessment, a blended learning scenario for non-traditional students was designed and tested by a group of non-traditional students including athletes and part-time students with professional backgrounds. The didactic chances and challenges will be elaborated on within the next chapter.

2.3   Conceptual Design of Learning Scenario

Blended Learning is a promising approach to learning and is widely recognized in educational psychology and constructive didactics. There is evidence that this learning format has positive impact on learning outcome and dropout rates as well as learning perception in general [3, 13, 14]. It can be described as thoughtful fusion of face-to-face and electronic (online) learning which combines the strengths of each learning scenario [12]. Learners do not feel isolated in an e-learning only setting but are more flexible when and where to learn. Other advantages are the individual learning pace and revision possibilities. Indeed, it is a high potential approach to support meaningful learning, especially for non-traditional students because it provides flexibility of place and time [7] – important requirements for both part-time students with a professional background and student top athletes.

However, there is a very wide range of design possibilities because there are no further limitations how to set a blended learning arrangement. There are several distinct models like the rotation model or the flex model that are well known in education and didactics [6] but the design varies despite the same underlying approach. Neither the order of the different phases nor the design with regard to content is specified. Thus, every instructional designer and teacher needs to decide how to arrange the parts [4]. The course can either start with an on-site meeting for community building reasons or the learning scenario can present the main theoretical information online followed by a traditional face-to-face meeting (see Fig. 2). Determining factors for this complex decision are for example subject of course, target group specifications and didactical approach. Therefore, blended leaning does not only change learning, it also influences teaching and organizational issues in (higher) educational institutions [10].

The described combination of traditional and online learning forms can particularly combine the advantages of both settings and compensate their drawbacks. Nevertheless, the course procedures of the hybrid scenario and the methods and approaches used in the different phases have to be taken into consideration as well.

A special content structure can be provided by the flipped classroom model. The flipped classroom model originates from traditional classroom settings in which the teacher lectures on basic information, theories and models during class time. Students primarily listen to the teacher and write down important information. At the end of the lecture students get homework to be done after the class and often by themselves [16]. In this common scenario, the teacher plays an active part, the students are more passive.

Table 1. Learning challenges of non-traditional students

Organizational challenges	Lack of time to attend classes and exams ◊ Due to overlapping training schedules ◊ Due to training camps and competitions ◊ Due to inflexibility of academic and training schedules
	Lack of time to participate in academic and student life ◊ Due to overlapping training schedules ◊ Due to training camps and competitions ◊ Due to commitments in sports related activities (representation, promotion of young talents) ◊ Due to commitments in social life (family, volunteering)
Social challenges	Lack of integration into student groups ◊ Due to times of absence ◊ Due to different approaches towards learning ◊ Due to special attendance from university teachers ◊ Due to missing attendance from university teachers
	Lack of communication within study groups ◊ Due to times of absence ◊ Due to missing contacting possibilities ◊ Due to lack of information (e.g. scheduled meetings)
Didactic challenges (student's perspective)	Lack of basic knowledge as prerequisite for study success ◊ Due to absence in classes, especially opening sessions ◊ Due to missing self-study materials ◊ Due to missing support by teachers and fellow students
	Lack of continuous learning processes ◊ Due to constant shift between academic and training commitments ◊ Due to information overload while attending classes/compact courses ◊ Due to lack of self-learning opportunities during times of absence (no lecture recordings, no online learning materials) ◊ Due to lack of test options to assess level of learning progress
Didactic challenges (framework requirements)	Lack of flexible learning options ◊ Due to administrative and curricular requirements (e.g. schedules, exam methods)
	Lack of technical support ◊ Due to learning content that is not applicable to mobile devices ◊ File size of learning materials requires premium mobile access options ◊ Electronic learning requires web access (not necessarily required in training camps or competition sites)
	Lack of didactic support ◊ Low level of instruction and feedback by teachers ◊ Lack of learning content that is adapted to online learning instruments

Table 2. Didactic approaches for non-traditional students

| Methods of organizational resolution	➢ Creation of flexible curricular ➢ Promotion of flexible learning and exam schedules ➢ Promotion of innovative learning instruments (e.g. electronic learning)
Methods of social resolution	➢ Inclusion of non-traditional students through support programs (e.g. buddy programs) ➢ Promotion of communication opportunities through learning management systems ➢ Promoting benefits of learning within diverse study groups ➢ Raising awareness for challenges non-traditional students face ➢ Promotion of (virtual) team work on- and off-campus
Methods of didactic resolution (student's perspective)	➢ Creation of flexible learning frameworks ➢ Creation of flexible exam frameworks ➢ Creation and enhancement of self-learning opportunities ➢ Support by teachers and administration through lecture recordings and accompanying instructions as well as feedback ➢ Creation of micro learning units in order to promote continuous learning opportunities as well as slow-learning sessions
Methods of didactic resolution (framework requirements)	➢ Adaption of learning content to different technical requirements ➢ Download option to learn offline if necessary ➢ Reducing file size of learning content ➢ Promotion of clear instructional design in order to enhance handling of learning content ➢ Promotion of clear instructional design in order to enhance learning ➢ Promotion of flexible learning approaches ➢ Promotion of online consultations and self-assessment options
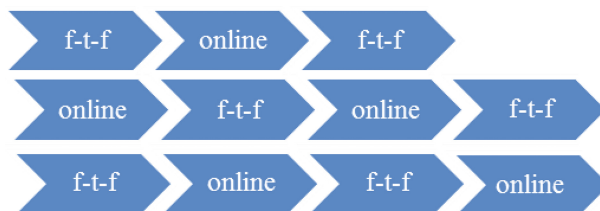
Fig. 2. Blended learning scenarios: different ways to scaffold the course

In order to increase learning outcomes, teachers shall rather promote active learning in class rather than simply transmitting information to students [11]. Flipped classroom inverts this traditional setting by delivering all basic information before and outside of the classroom. The valuable class time is only used for discussion, practice and other learning activities. These learning activities involve the application of the acquired information as well as interactive and collaborative parts in order to support the engagement of students. It is an important prerequisite for meaningful learning processes like elaboration, transfer and knowledge construction.

Furthermore, it is assumed that flipped classroom arrangements can foster learning by increasing intrinsic and extrinsic motivation and enhance the management of cognitive workloads [1]. However, there is still little empirical evidence of these assumptions and more research has to be done [1, 9]. Nonetheless, it seems to be a useful supplement to blended learning and will be implemented in the present approach. To combine the flipped classroom model with blended learning, all activities before and after the on-campus meeting will take place online. The teacher provides all necessary information in form of pre-recorded video clips, presentation slides and further reading via a learning management system. The students learn self-directed, when and where they want, skip parts they already know and repeat difficult content until they feel confident about it. By using chats, bulletin boards, and online tutorials in the self-studying phase students can interact with each other, stay in contact and collaborate virtually. Implemented online self-assessment tests and exercises help students to evaluate their individual learning progress.

2.4   Combined Approach for the Learning Module "Scientific Writing for Academic Purposes"

Within the research project we developed a blended learning course teaching basic rules of scientific writing and fostering key learning competences. Figure 3 presents the basic procedure of the approach, combining blended learning and flipped classroom.
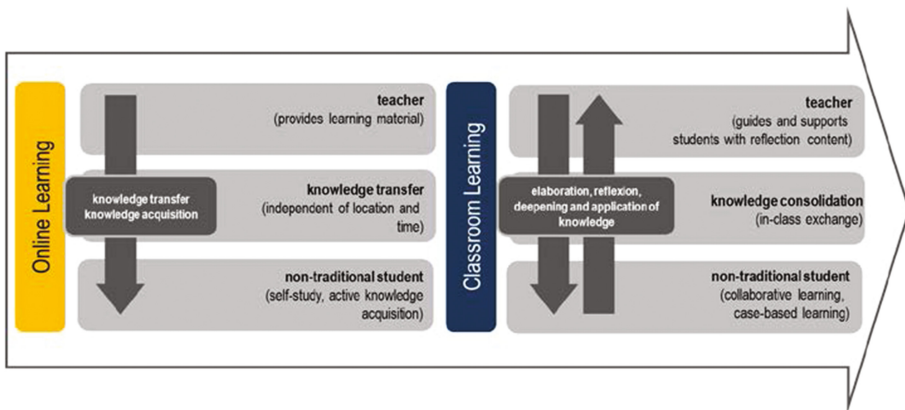

Fig. 3. Combined learning approach

The course started with a kick-off event for the participating non-traditional students. Absent student top-athletes received all necessary information via email. The course agenda, the learning objectives and the procedure were explained in order to make the learning responsibilities as transparent as possible. Another important part of this kick-off was the explanation of the teaching and learning methods, e.g. the use of the learning management system OPAL (Online Platform for Academic Teaching and Learning). The teacher introduced the training modules and the technical possibilities. The learning process consists of acquiring theoretical knowledge by reading, getting to know the subject matters and important theoretical models. These information is fundamental for the discussion during the classroom training. Subsidiary video, small course units, self-tests and a forum for discussion were supplied on OPAL. The integration of the flipped classroom into a blended learning scenario allows discussing, applying and enhancing the acquired knowledge.

As mentioned before, the exchange with fellow students is difficult for student top-athletes because of the times of absences as well as the extended study time which allowed more individual learning. That is why we involved cooperative and collaborative tools in the blended learning scenario. Besides the forum for general exchange, the learners attended a three-part peer-feedback. They had to deliver three work samples online which were discussed and assessed within the working group. They interacted with each other, applied their knowledge and learned with as well as from each other.

Exercises and discussion points have also been included into the classroom seminars which enabled the student learners to elaborate, reflect, deepen and apply their knowledge. The self-learning videos supported the knowledge transfer. In order to support the active watching of learning videos, the students had to accomplish accompanying worksheets.

2.5   Evaluation

After participating in the class, we asked the 22 participants of the group of non-traditional students about their learning experiences. The assessment contained of two steps: (1) an online questionnaire focusing on individual motivation, learning experiences and the evaluation of teaching methods and learning outcome; and (2) a group discussion on personal experiences, benefits and challenges.

Overall, the students were satisfied with the course design. Most of them appreciated the flexibility the blended learning approach offered. The learning content as well as the implementation of e-learning instruments were considered suitable for both student top-athletes and part-time students with a professional background. Framework requirements such as expenditure of time, level of difficulty and required e-learning skills were considered at an appropriate level. The provided videos and the self-assessment tests were appraised as the most significant features of the e-learning elements. Only two students mentioned usability problems while using their smartphones for learning.

Regarding motivational aspects, all non-traditional students considered themselves as motivated or very motivated throughout the class. Elite sport students' motivation

was higher than those of the other non-traditional student groups. Especially the e-learning environment fostered the motivation of the student top-athletes, whereas there was no positive impact on part-time student's motivation.

All students evaluated the combination of face-to-face meetings and e-learning positively and mentioned the well-fitted interrelation between the two.

3   Conclusion

Developing learning and studying abilities of students is crucial for student's academic success. The habitat of higher education needs to be explored and tested; students need to learn how to learn and how to behave within that special setting. Subsequently, they will be able to develop individual learning techniques that are continuously to be supported by suitable teaching methods. At the end of their studies they will be able to transfer their knowledge into practice but will also be confident and aware of their expertise.

The research project proved that learning for non-traditional students not only comprises of gaining knowledge and passing exams but also includes the balancing of two different worlds: the academic and outside requirements such as training or work. A comprehensive teaching and learning approach seems to be applicable for creating 'a perfect world of higher education' for such non-traditional students.

To meet the organizational needs of student top-athletes, as well as other groups of non-traditional students, carefully structured timetables and exam schedules have to be created that apply for the whole student body. That way, top-athletes can take part in regular in-class activities and they can socially bond with their fellow class mates. In addition, non-athlete students benefit from the time management skills and high learning engagement of student-athletes that have been observed during the scientific writing class-project at Mittweida University. Blended-Learning options, especially the Online Platform for Academic Teaching and Learning (OPAL) and even simple social media tools such as Skype or Facebook learning groups are of valuable quality for Mittweida's non-traditional students in periods of time-intense tournament preparation, business obligations or travelling.

In conclusion, the research project showed that the development of a range of flexible forms of education delivery is critical to meeting the needs of non-traditional students in all types of education. Distance and electronic learning in particular may provide non-traditional students with flexibility in terms of the timing and location of their academic and 'outside' activities.

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