

Reception and Acquisition of Educational Research Knowledge between Library and Internet: The Viewpoint of University Students

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L'articolo descrive i risultati di una ricerca condotta alla Libera Università di Bolzano nel 2017 con studenti universitari, la quale focalizza sulla ricezione e sull'acquisizione delle conoscenze nell'ambito delle scienze della formazione. Si ipotizzava una discrepanza tra la tradizionale assimilazione delle conoscenze tramite libri di testo e articoli scientifici e l'uso dei nuovi media. I risultati dimostrano che i media e l'uso di internet cambiano il modo in cui gli studenti imparano e cercano informazioni. L'acquisizione delle conoscenze tramite libri di testo e articoli di riviste cartacee continuano ad essere importanti, però nuove forme, per esempio l'acquisizione di conoscenze su siti web e riviste online sono altrettanto importanti. Queste nuove forme facilitano il processo di apprendimento ma non è ancora chiaro quanto questo influenzi il successo e la qualità dell'apprendimento degli studenti. I risultati dimostrano che le attività didattiche dell'università (per esempio su Moodle e OLE) vengono meno utilizzate dagli studenti di quanto richiesto dal programma di studi. Questa ricerca mostra differenze nell'acquisizione delle conoscenze in riferimento all'età, alla residenza e all'anno di studio dei partecipanti.

This paper describes the results of a survey conducted at the Free University of Bozen-Bolzano in 2017 with university students, whereby this paper focuses on knowledge reception and acquisition. We assumed that there is a lack of fit between traditional university cultures – hence, the presentation and reception of knowledge through classical textbooks and articles, and the students' new media behaviour. The results show that the use of media and internet changed the way students learn and search for information. Traditional ways of data reception – that is, specialist books and professionally printed journals – continue to be important, but new ways of knowledge finding – or example through websites and online-journals – are just as important. These new ways may facilitate reception processes but it is not yet clear to what extent they influence the students' performance and quality of learned contents. In this respect, however, it is interesting to note that university online offerings (e.g. Moodle, OLE) are less widely used by students than actually demanded by the design of the degree program. In addition, this study reveals differences in the reception and acquisition of educational research knowledge in age, residence, and year of study.

Parole chiave: educazione terziaria, culture studentesche, acquisizione delle conoscenze, formazione degli insegnanti, media

Keywords: higher education, learning cultures, knowledge acquisition, teacher education, media

1. Introduction and Literature Review

In the last ten to fifteen years, the digitalisation process with the use of new technologies and possibilities of ICT – especially the use of new media and new forms of access to scientific contents – has affected the scientific search and research itself as well as the publication of research results. However, classical forms of publications of research results and theories in printed textbooks and journals still exist in the educational field but they were expanded by new digital forms of knowledge reception. Consequently, also the students' ways of learning and searching for information changed. Regarding this, in February 2016, through an open letter to the Italian government and parliament, 600 university professors determined that current students could not write appropriate texts and argumentations. These professors assume that the causes of this phenomenon are attributable, among others, to the intense use of new media as well as the lack of reading classical textbooks. The technological development and use of media for knowledge reception and acquisition in education have provided opportunities for teaching and learning and hence changed learning cultures.

On the question how students assimilate knowledge, the aims of instructions have to be considered. Hence, it is important to question whether learning is oriented towards learning aims or towards competences. A competence-oriented teaching and learning¹ based on the students' knowledge and starting position² might entail an in-depth exploration of trustworthy sources, such as peer-reviewed papers in highly ranked, prestigious journals rather than the use of sources that quickly lead to an answer – for example Wikipedia.

This research aimed at shedding light on the under-researched area of student cultures in educational sciences. Students in teacher training universities are challenged to acquire a predefined research culture that incorporates diverse and culturally restricted approaches³. To the

¹ E.g. Ziener G., *Bildungsstandards in der Praxis. Kompetenzorientiert unterrichten*, Seelze, Kallmeyer, 2013.

² See also pedagogical diagnostic in Jürgens E., Lissmann U., *Pädagogische Diagnostik: Grundlagen und Methoden der Leistungsbeurteilung in der Schule*, Weinheim, Beltz, 2015.

³ Knaupp M., Schaufler S., Hofbauer S. & Keiner E., *Education Research and Educational Psychology in Germany, Italy and the United Kingdom – an Analysis of*

best of our knowledge, only a few studies focused on the named phenomenon. For instance, Felbinger questioned how a learning culture that strengthens individuals should look like: it is a learning culture which is based on the resources of the participants, and which supports societal participation⁴. As a result, the researcher created a model of learning cultures, which is coherence-oriented, ensures an emancipatory education, is connected with the students' biography, lives and resources and which supports the development of different competences and societal challenges.

Moreover, the time spent on academic pursuits changed over time. Babcock and Marks⁵ found in the U.S. that while full-time students in the early 1960s spent roughly forty hours per week on academic tasks (including individual study as well as class time), today they spend only about twenty hours per week on academic pursuits. Individual study time fell from twenty-five hours per week in 1961 to twenty hours in 1981 and only thirteen hours in 2003. The authors explain these findings by the fact that nowadays – compared to the past – different types of learners attend higher education and that the placed requirements within attended courses changed. Other researchers underline that education is changing because of new media. New media refers, according to Conway⁶, to a range of applications that merge traditional media such as print, television, film, newspapers and images with digital technology to create interactive and dynamic publications, tools and uses. It is characterised by elements such as open access, user driven and collaborative content generation, feedback and digital delivery. Examples include virtual worlds, collaborative workspaces, social media, open access journals, applications for smart phones, tablets, and e-readers⁷.

Scholarly Journals, in „Schweizerische Zeitschrift für Bildungswissenschaften“, 2014, 36(1), pp. 83-108.

⁴ Felbinger A., *Veränderte Lernkulturen im Spannungsfeld von Individuum und Gesellschaft. Entwurf eines Modells einer kohärenzorientierten Lernkultur für die Erwachsenenbildung*, Unveröffentlichte Dissertation, Institut für Erziehungs- und Bildungswissenschaften, Universität Graz, 2009.

⁵ Cited in Arum R., Roksa J., *Academically adrift: Limited Learning on College Campuses*, Chicago, University of Chicago Press, 2011.

⁶ Conway M., *Exploring the Implications, Challenges and Potential of New Media and Learning*, in “On the Horizon”, 19(4), 2011, pp. 245-252.

⁷ *Ibidem*, p. 245.

Conway emphasises that the transition consists of a “traditional model of learning to a new, socially mediated model”⁸. According to the researcher, learning is changing, as it is becoming more collaborative and interest-driven. Different types of media, such as social media, create new ways of knowledge reception and acquisition in and outside the classroom.

Other studies on higher education based on the use of modern technologies; the results and findings show a very wide research field, which includes a wide range of theoretical concepts, empirical results as well as purely didactical recommendations. For example the Activity Theory based on Vygotsky, Leontiev and Engeström focuses on learning and teaching in online environments, historical and systematic tensions in educational contexts and the relations between learning and development of individuals and collectives⁹. Moreover, other researchers¹⁰ studied the self-learning arrangements of students, and hence topics like peer-to-peer learning or peer-learning (imparting skills through peers) as well as an interdisciplinary cross-teaching. Other studies in higher education focused on the academic success in current students’ learning processes. Regarding this, the authors Severiens, Meeuwisse and Born¹¹, basing on different studies, note that academic success is explained through experiences, attitudes and time.

The German Association for Educational Science¹² dedicated an issue on the topic “University 4.0. Consequences of the digitalisation

⁸ *Ibidem*.

⁹ For an analysis on this theory, see e.g., Fleer M., *The Vygotsky Project in Education – The Theoretical Foundations for Analysing the Relations between the Personal, Institutional and Societal Conditions for Studying Development*, in D. S. P. Gedera, P. J. Williams (Eds.), *Activity Theory in Education: Research and Practice* (pp. 1-15), Rotterdam, SensePublishers, 2016, retrieved from https://doi.org/10.1-007/978-94-6300-387-2_1.

¹⁰ E.g., Hiller G. G., *Didaktisch-organisatorische Herausforderungen von Selbstlernarrangements. Conditions for Studying Development: Überlegungen am Beispiel zweier Lehrveranstaltungen*, in K. Armbrorst-Weihs, C. Böckelmann, W. Halbeis (Eds.), *Selbstbestimmt lernen – Selbstlernarrangements gestalten: Innovationen für Studiengänge und Lehrveranstaltungen mit kostbarer Präsenzzeit*, Münster, Waxmann, 2017, pp. 67-76.

¹¹ Severiens S., Meeuwisse M., Born M., *Student Experience and Academic Success: Comparing a Student-centred and a Lecture-based Course Programme*, in “Higher Education”, 70(1), 2015, pp. 1–17, retrieved from <https://doi.org/10.10-07/s10734-014-9820-3>.

¹² DGfE, “Universität 4.0”: *Folgen der Digitalisierung akademischer Lehre und Forschung*, „Erziehungswissenschaft“, 28(55), Leverkusen, Verlag Barbara Budrich,

for academic teaching and research”. This issue thematises the strong potential of electronic media in higher education and discusses the consequences of the digitalisation process for educational research and teaching. Only two years before, in 2015, Hofmann wrote about the topic “Science eCommunication 3.0 as digital student publishing. A synthesis of eLearning 3.0 and Web 3.0 for the integration of students in the academic world”. Hence, among these publications, we can observe the rapidity and optimism within this development and assume that this ideal is not in accordance with the current progress in academia.

Regarding the use of new media, Gidion, Grosch, Capretz and Meadows studied the media use by students and instructors in Canada¹³. They underlined that students use a mixture of traditional and new media for their studies. They found that printed material and slides from teachers are very popular among students for their studies. Moreover, students make use of libraries and acquire knowledge in university classes. The authors state that in addition new media, for instance, electronic papers, are used likewise. Gidion *et al.* conclude that their comfortable and simple access could result in a further increasing use in future. Furthermore, the authors Hoyer and Mundt¹⁴ found that 32.6 percent of the participating students in Germany in a study on a digitalised academic learning project do not prefer online lessons, nor do they take a positive view on the flexible study structures based on digital new media. These students only see small advantages regarding the academic digitalisation.

This literature review has shown that there is no consensus on preferred media and forms of reception of academic knowledge and thus there is a need for research on student learning cultures in the current changing academic context.

2017, retrieved from <https://shop.budrich-academic.de/produkt/heft-55-2-2017-erziehungswissenschaft/?v=11aedd0e4327>.

¹³ Gidion G., Grosch M., Capretz L. F., Meadows K., *Media Usage Survey: Overall Comparison of Faculty and Students*, International Conference on Interactive Collaborative Learning (ICL), Dubai, United Arab Emirates, 2014, pp. 1014-1020.

¹⁴ Hoyer T., Mundt F., *Personalisiertes Studieren, reflektiertes Lernen. Eine Analyse des Studierverhaltens in digital gestützter Lehre*, in „Erziehungswissenschaft“, 28(55), 2017, pp. 59-70.

2. Methodology

Understanding the students' behaviour, habits and cultures are fundamental for academic environments, their culture of acquisition and teaching, education and qualification, as well as for research¹⁵. Studying the students' view and way of living their student life is relevant as research has shown that the students' conceptions of learning influence their motivation, adopted strategies and learning outcomes¹⁶. In general, students' perceptions of their student life have been studied by sociological approaches and qualitative means such as interviews with students¹⁷ and reflective writings. Little research focused on the reception and acquisition of educational research knowledge in teacher training. Hence, this paper sought to fill the named gap.

2.1 Research Questions

Based on the above, different questions arose:

1. How often do university students use relevant educational literature within different media for their studies? Do they use forms of reception of educational theories and research practices offered through new technologies?
2. Which reception cultures have students acquired to achieve the given aims in educational study programmes?
3. Can differences be observed in age, gender, residence, and year of study in the students' media use for study purposes and regarding their learning and working methods?

¹⁵ Keiner E., *Akademische und studentische Fachkulturen als Kontexte von Studienreformen. Zum Stand der Forschung im Schnittfeld von Politik und Wissenschaft*, unpublished article, 2004.

¹⁶ E.g., Pillay H., Purdie N., Boulton-Lewis G., *Investigating cross-cultural variation in conceptions of learning and the use of self-regulated strategies*, in "Education Journal", 28(1), 2000, pp. 65-82; Purdie N., Hattie J., *Assessing Students' Conceptions of Learning*, in "Australian Journal of Educational & Developmental Psychology", 2, 2002, pp. 17-32.

¹⁷ E.g., Kröger R., *Studien- und Lebenspraxis internationaler und deutscher Studierender. Erfahrungen bei der Ausbildung eines ingenieurwissenschaftlichen Habitus*, Wiesbaden, VS Verlag für Sozialwissenschaften, 2011, for a study on engineering students.

2.2 Description of Teacher Training in the Observed Context

Teacher training depends on regional and national policies. In the studied context (South Tyrol-Italy), a university degree is mandatory for kindergarten, primary school and secondary school teachers. Within this study, future teachers of all three groups participated.

Some participating students were attending a professional in-service training (University Vocational Training Course, UBK) at the Faculty of Education at the Free University of Bozen-Bolzano. We included these students because of their increasing number at the named institution; by law, those who are specialised in a subject need an additional pedagogical qualification to get an open-ended employment contract as a teacher at secondary school level.

At the time of data collection and analysis, the University Vocational Training Course (UBK, Free University of Bozen-Bolzano, 2018a) was a professional training course for teachers and career changers at the Faculty of Education with the aim of imparting knowledge and competences for the qualified practice of the profession of secondary school teachers in the Autonomous Province of Bolzano. By concluding these studies, attendees got a diploma that certified the teaching qualification in one of the competition classes or in a subject area. Various Italian laws and decrees regulated this study programme. However, various legal changes, with the necessity to revise the course regulations several times, were made in recent years. On the basis of the laws and decrees of the State and Province, the President of the Free University of Bozen-Bolzano (2018b) issued Decree No. 55 dated July 10, 2017 (legally effective as of 2016/2017), which regulated the definition, access and objectives of the degree programme.

However, most participating students of the Free University of Bozen-Bolzano attended the German-language master course, which qualifies future kindergarten and primary-school teachers. The study programme leads to a Master in Primary Education with a duration of 5 years. During the first study years, basics in the fields of pedagogy, psychology, anthropology and didactics are taught. These basic disciplines are combined with school subject areas such as natural sciences, mathematics, history and music. A focus is placed on the preparation for the future linguistically and culturally heterogeneous kindergarten and school reality in the studied context (South Tyrol, an au-

tonomous and predominantly German-speaking province within the Alpine region). This region is characterised by a high cultural and linguistic diversity; hence, three different official language groups (German, Italian, and Ladin) meet each other in this territory. The emphasis of the study programme is on inclusion, multilingualism and interculturalism within its sociolinguistic and sociocultural context. Specific academic working techniques are especially taught in the first and fourth year of study. In addition, also during the other academic years these competences are promoted as cross-cutting tasks. According to the old study programme, valid until October 2017, scientific research methods are taught during the fourth year of study. According to the new study regulations (since October 2017), the research methods will be taught together with the general academic working techniques (citation techniques, searching strategies etc.) in the first year of study. Research strategies for educational literature, citation styles and the use of libraries are also taught in optional courses held by the library.

2.3 Instrument

In order to get the necessary data to answer the research questions, an adequate measurement instrument – that is a questionnaire – was developed; elements from the following instruments were adapted and revised:

- Keiner (2000a; 2000b): dimensions such as engagement and passion, student motivation and performance as well as students' interest in teacher training were revised and adapted to the purposes of the present study;
- Peitz & Fthenakis (2007): questions on the students' study motivation and satisfaction as well as on the view of the child were integrated;
- Cramer (2012): the dimension performance motivation at school and understanding of school and education was adapted;

The final questionnaire consisted of seven sections, which are listed hereafter:

- Students' background
- View of pedagogy
- Engagement and passion
- Student motivation and performance motivation
- Students' interest in teacher training

- Prestige of future profession
- View of the child
- Teamwork

Consequently, the questionnaire was validated qualitatively within a seminar held at the Faculty of Education at the Free University of Bozen-Bolzano. The final questionnaire consisted of 49 questions, and all questions were piloted. Regarding this, a small sample similar to the intended group of respondents – that is teacher training students – filled out and commented the questionnaire. These comments were checked and then considered in the final questionnaire; hence, minor changes were made.

Within the framework and the purposes of this paper, only a few dimensions were considered, analysed and presented in the results section.

2.4 Data Collection and Analysis

Data for this article were obtained from a larger study on student cultures in South Tyrol, Italy. Data were collected in July and August 2017 and at the Faculty of Education at the Free University of Bozen-Bolzano through an online-questionnaire (N = 154).

Data were analysed by means of SPSS 24 whereby descriptive statistics, a factor analysis, a two-sided t-test, and a one-way ANOVA were used to answer the research questions. Moreover, because of the ordinal level of the items, the results were compared with a non-parametric test (Kruskal-Wallis-H-test as one-way-analysis of variance). Hence, in this paper significant p-values were only reported provided their significance in the Kruskal-Wallis-H-test.

The conducted analyses aimed at explaining the differences in the items 28 (Use of educational literature) and 29 (Importance of learning and working methods). The Cronbach alpha of the items areas 28 and 29 is good ($\alpha = 0.84$). These values refer to a good consistency and reliability of both item areas, which we used to answer our research questions. We only accepted significant values in the metric as well as non-parametric tests.

3. Results

3.1 Sample Descriptions and Descriptive Data Analysis

Figure 1 shows that less male students participated in the survey. While 83% of participants were female students, only about 17% were male students.

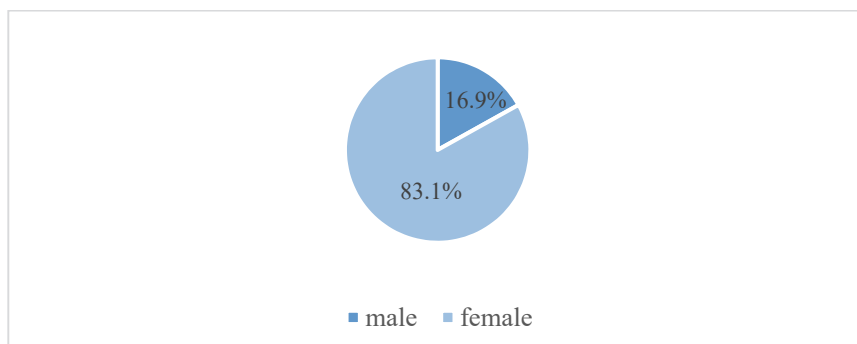


Figure 1: Gender in Percentages

The age of the participants in the sample of this research is wide-ranged (see Figure 2), the youngest participant was 19 and the oldest was 48 years old. This wide range is to be explained by the involvement of students attending a professional in-service training.

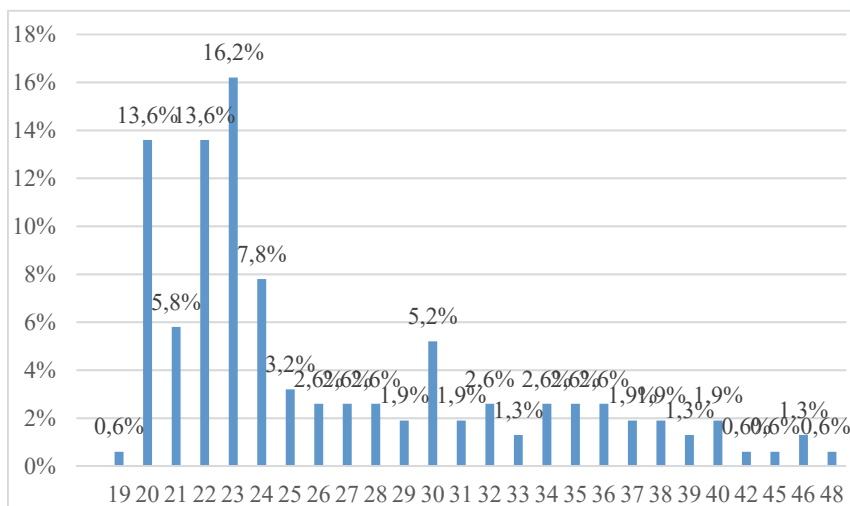


Figure 2: Distribution of Age in Percentages

For the further data analyses, we classified the participants' age variable (M=26.5; Mode=23; Median=23.5) into four relatively homogeneous groups that are shown in Table 1.

Age in Groups	N (154)	Percentages
19-21	31	20.1
22-23	46	29.9
24-30	40	26.0
31-48	37	24.0

Table 1: Age Classified in Groups Shown by Percentages

Nearly fifty-eight percent of students were attending year one or two, while the rest of students were enrolled in year three or four (see Table 2).

Academic Year	N (121)	Percentage
1	37	30.6
2	33	27.3
3	22	18.1
4	29	24.0

Table 2: Distribution of Academic Year of Study in Percentages

We also asked for the students' residence because this socio-demographic variable could explain differences in their working behaviour, which may be justified in different access to media or online-access, as well as a more general difference in the students' working behaviour. Typical for student samples in teacher education, a high percentage of students still lives with the parents. German first language speakers in South Tyrol typically live in rural areas and smaller villages, while Italian-speaking students frequently live in the cities of South Tyrol. This sample includes only German-speaking students, and that is why the percentage of students, which live in rural areas, is relatively high (63.6%). The remaining 36.4 percent live in urban are-

as (see Figure 3). Moreover, most students come from families without a specific academic background.

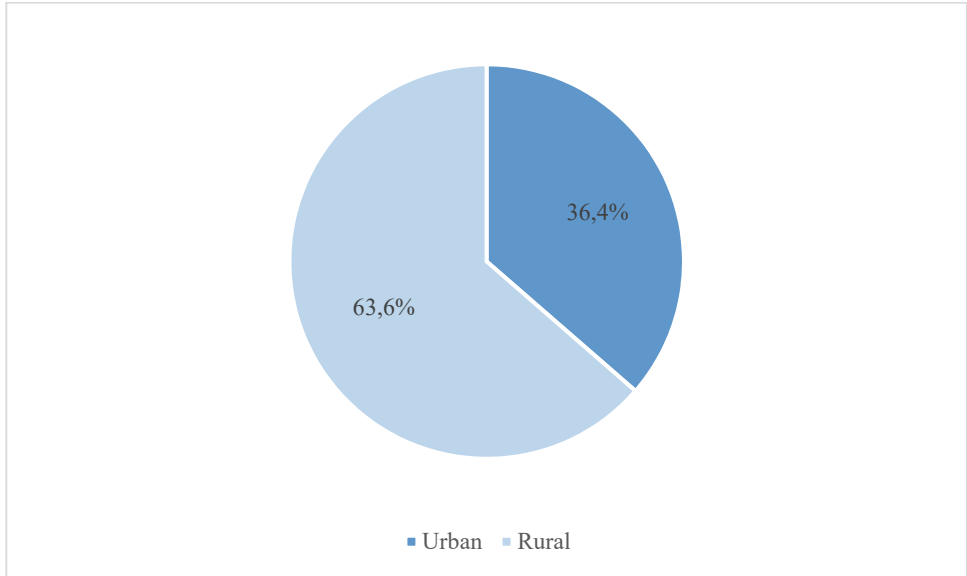


Figure 3: Distribution of Participants' Residence in Percentages

Moreover, the time students spend for their studies has been analysed. The students in the sample spend about nine hours per week for individual work at home. They spend about three hours per week for studying in a library. It is interesting that the students in this sample spend less time in online libraries—about two hours per week—than in the physical library. Moreover, the students in this study work for about four hours per week in groups of learners.

3.2 Question 1

Figure 4 includes the distributions of the research area 28 (use of educational literature) in percentages. It shows the distributions of the answer categories for the single items in a more detailed view. Generally, the results show that students regarding the tested media make less use of online-course-management-systems such as Moodle and OLE offered at university for all three observed aspects (proof of academic achievement, browse topics, and to prepare and follow-up lectures). Classical text material (e.g. print and online media and notes

from seminars and lectures) as well as online materials enjoy great popularity among students; these are predominantly rated as being used frequently or sometimes by students. This is observable for the proof of academic achievement, the preparation and follow-up of seminars, as well as to browse topics. Students prefer the use of notes for proof of academic achievement and to prepare and follow-up lectures (Figure 4).

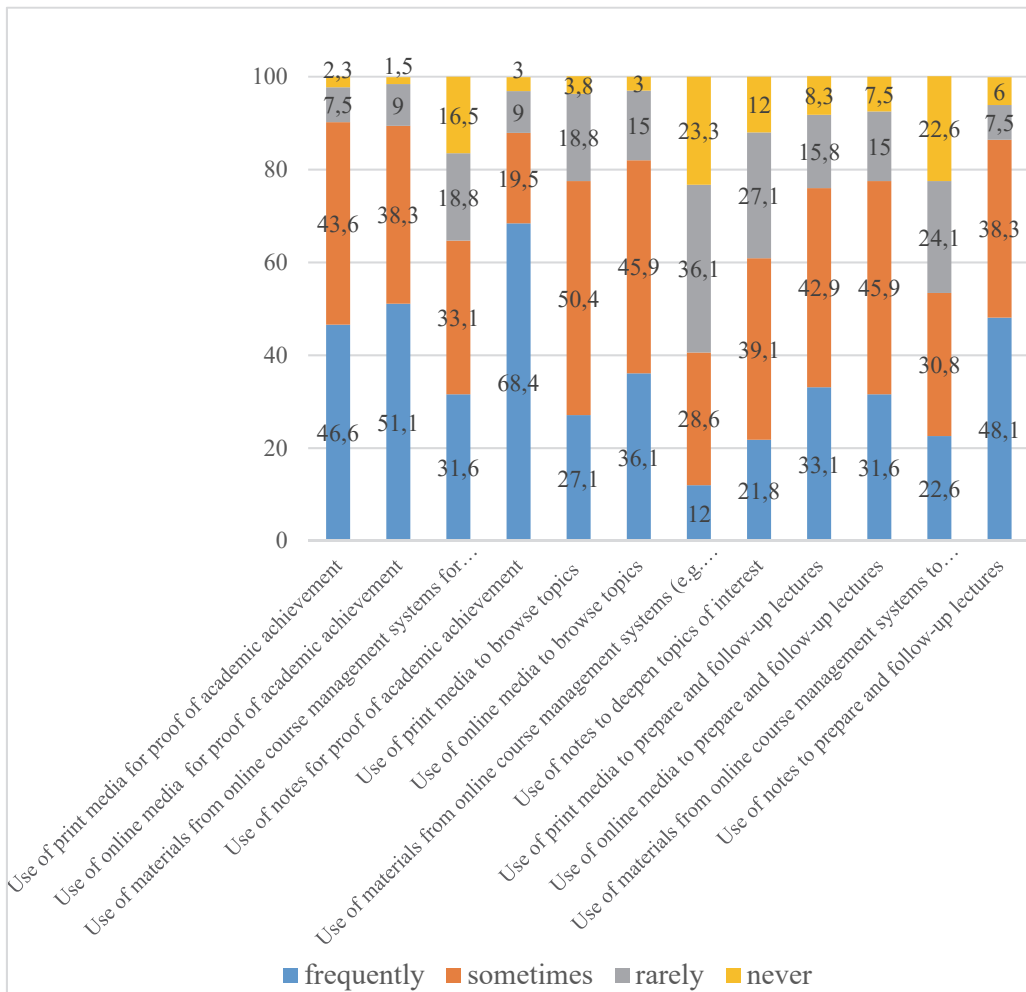


Figure 4: Distribution of Use of Educational Literature in Percentages

Data have shown ambivalent results regarding the use of different forms of reception of educational knowledge offered through traditional acquisition methods and new technologies. While students on

the one hand reject the use of online course management systems, which are provided by universities in order to structure and order academic knowledge and hence to make knowledge easily accessible and which are connected with a high effort by the university staff, on the other hand students prefer the use of online media, such as Wikipedia.

3.2 Question 2

Figure 5 includes the distributions of the research area 29 (importance of learning and working methods) in percentages. The participating teacher education students clearly preferred a more practical as well as less abstract and communicative access to their studies (Figure 9). The practical experiences and the conversation, as well as reading, turned out to be most important. The factor analysis (principal component analysis with varimax as rotation method and Kaiser normalisation) shows three working dimensions. The first dimension includes the classical university working methods: lectures, seminars, group work, which load together with working on the computer and on the internet with middling correlations ($r=0.64$ till $r=0.75$). The second dimension contains conversation and practical experience ($r=0.77$ till $r=0.81$). The third working dimension contains reading and text writing ($r=0.67$ till $r=0.86$).

Students prefer individual study methods like reading and communicative methods like conversations. Moreover, they appreciate seminars and give a high importance to practical experiences and less to lectures, the work on the computer, group works, and to text writing.

The item area 29 (Importance of learning and working methods) revealed the students' preferences regarding learning and working; they prefer practical experiences and conversations instead of writing texts, attending lectures and working in groups. The following order could be observed:

- Practical experience ($M=3.77$, $SD=0.53$)
- Conversation ($M=3.69$, $SD=0.60$)
- Reading ($M=3.34$, $SD=0.70$)
- Seminars ($M=3.21$, $SD=0.74$)
- Computer/internet ($M=2.80$, $SD=0.79$)
- Group work ($M=2.77$, $SD=0.88$)
- Lectures ($M=2.77$, $SD=0.73$)
- Text writing ($M=2.49$, $SD=0.92$)

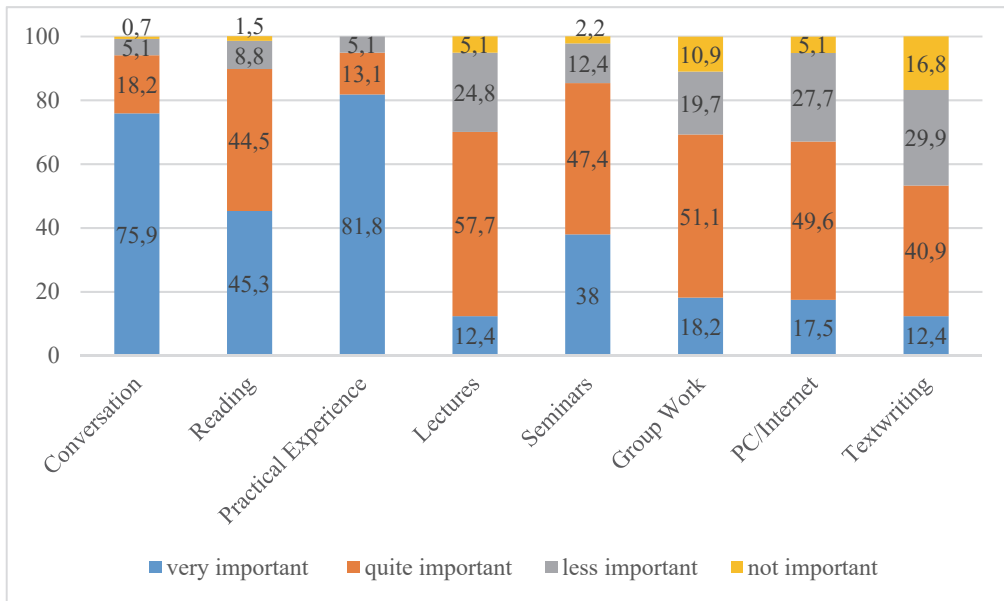


Figure 5: Distribution of Importance of Learning and Working Methods in Percentages

3.3 Question 3

Differences in Age

The statistical analysis of the use of different media to prepare for academic achievement, to browse in contents and to prepare and follow-up seminars did not show different results for the students' age.

Regarding the importance of learning and working methods, students aged 31 to 48 ($M=3.54$, $SD=0.70$) gave significantly less importance to the item practical experience than students aged 22 to 23 ($M=3.88$, $SD=0.40$), in a one-way ANOVA ($df=3,133$, $F=3.15$, $p<0.05$). Moreover, from data emerged (although not significantly) that the importance of practical experiences systematically falls with an increasing age.

Furthermore, differences emerged within the attributed importance to seminars; younger students scored higher on this item than older students. Participants aged 19 to 21 ($M=3.48$, $SD=0.59$) gave signifi-

cantly more importance to the attendance of university seminars than students aged 31 to 48 ($M=2.97$, $SD=0.79$) as has shown a one-way ANOVA ($df=3,133$, $F=4.50$, $p<0.05$). In addition, the group aged 22 to 23 ($M=3.43$, $SD=0.55$) scored higher than the latter mentioned—that is, participants aged 31 to 48 ($df=3,133$, $F=4.50$, $p<0.05$).

In addition, differences regarding the importance of working in groups could be observed among group 1 (aged 19 to 21, $M=3.08$, $SD=0.70$) and group 4 (aged 31 to 48, $M=2.43$, $SD=0.88$) as has shown the conducted one-way ANOVA ($df=3,133$, $F=3.48$, $p<0.05$).

Differences in Gender

We found two significant differences in the gender aspect regarding the use of educational literature. The item use of materials from online-course-management-systems to browse topics is significantly lower ($t=-2.147$, $p=0.03$) for female students ($M=2.22$, $SD=0.95$) than for males ($M=2.68$, $SD=1.03$). That means that male students use online-course-management-systems more often to browse topics than female students. In addition, the similar item use of materials from online-course-management-systems to prepare and follow-up lectures has shown higher values in males ($M=2.88$, $SD=0.83$) than in females ($M=2.45$, $SD=1.12$). This difference could be detected as significant ($t=2.196$, $p=0.03$).

There could not be observed any significant differences in males and females regarding their stated importance attributed to learning and working methods.

Differences in Residence

No differences could be observed regarding the students' literature use and their residence. However, there is a difference in the students' learning and working method: Lower values in text writing were observed in students living in rural areas ($M=2.32$, $SD=0.95$) than in students living in urban areas ($M=2.77$, $SD=0.78$). This difference could be detected as significant ($t=-3.012$, $p<0.01$).

Differences in Years of Study

We could observe significant differences in the year of study related to the importance attributed to the attendance of lectures ($df=3,104$, $F=2.762$, $p<0.05$). A Tukey post hoc test revealed that students attend-

ing study year one ($M=2.94$, $SD=0.76$) scored higher on the named item than students attending year three ($M=2.35$, $SD=0.81$).

4. Discussion

The results of this study have shown that students within this sample (future teachers in kindergartens, primary and secondary schools) generally prefer classical print media, their seminar notes as well as online media for their studies. Hence, in general the findings of this study confirm results from previous research¹⁸; students use a mixture of traditional and new media for their studies. However, students give low importance to online-course-management-systems offered by universities. Students not only use obligatory media in the form of classical print media and seminar notes, but they also use online media to a high degree. Hence, as already pointed out by Conway¹⁹, media created and still create new ways of knowledge reception and acquisition in and outside the classroom. Thus, students combine classical educational literature with educational texts retrievable from the internet. This intensive use of online media may be a result of their media socialisation. As already pointed out by Arum and Roksa students are “not only poorly prepared by prior schooling for highly demanding academic tasks... (but) they enter college with attitudes, norms, values, and behaviours that are often at odds with academic commitment”²⁰. Students prefer the use of print media as well as online media within all observed areas (to prepare for exams, to browse in topics, and to prepare or follow-up courses). Interestingly, the item “use of seminar notes” is less popular than the other two ways of information acquisition in the area “to deepen topics of interest”. There are some possible causes to explain this effect; firstly, it is possible that students are affected by a lack of trust with regard to their own seminar notes. Secondly, there could be a lack of interest regarding the educational topics of the study.

¹⁸ E.g., Gidion G., Grosch M., Capretz L. F., Meadows K., *Media Usage Survey: Overall Comparison of Faculty and Students*, cit.

¹⁹ Conway M., *Exploring the Implications, Challenges and Potential of New Media and Learning*, cit.

²⁰ Arum R., Roksa J., *Academically adrift: Limited Learning on College Campuses*, cit., p. 3.

It should be noted here, as already became apparent above, that the participating students do not differentiate between different kinds of media (e.g. printed, online and notes), which could be an effect of their status as digital natives, hence connected with their media socialisation. However, digital natives should be characterized by digital literacy. Regarding this, Conway emphasized, “digital Literacy is perhaps the most fundamental learning skill required not only by staff and students but by all members of society. High levels of digital literacy are required to allow us to deal with the ever-increasing amount of information available to us, and make judgements about the quality, credibility and relevance of that information. Our ability to “curate” that information will be an essential skill in learning”²¹.

However, students are more confident in using their own notes for evidence of achievement than in using the offered online-course-management-systems. This can be interpreted by the complexity and vastness of contents offered within the mostly Moodle based systems of many universities. It could also be that these systems present an information overload. These results and the known importance of online-course-systems for the self-perception and quality perception of universities as well as the common discourse to the digitalisation of the university courses lead to some considerations for universities. In future, it may be necessary to look closely at the quality of offered materials in these systems and their implementation and integration within academic courses.

Furthermore, in view of the importance of learning and working methods, the participating students show a certain dislike of text writing, which could—together with the refuse of online-course-management-systems—be a disadvantageous combination. The observed low attributed importance to text writing could be a result of the media socialisation; the students from this sample seem to be media consumers rather than creative-literary minds.

In general, students prefer classical academic working methods in combination with the use of the more modern online media as well as classical print media. Moreover, classical university courses like lectures are not the preferred learning methods. Future teachers prefer more practice-oriented study methods to access educational knowledge like practical experiences, conversations, and reading. The

²¹ Conway M., *Exploring the Implications, Challenges and Potential of New Media and Learning*, cit., p. 247.

high importance attributed to practical experiences and the low esteem of theory-oriented learning methods, such as lectures, suggests an already notorious, well-known and well-described theory-practice problem. This issue is common for educational and social studies, but not exclusively; in the year 1793 Immanuel Kant wrote a famous and influential text on this problem (title: “On the Old Saw: That may be right in theory, but it won’t work in practice. In German: “Über den Gemeinspruch: Das mag in der Theorie richtig sein, taugt aber nicht für die Praxis”). Furthermore, students reported their low attributed importance to text writing, to working on the computer and on the internet. It has to be noted that in the factor matrix, working on the computer and on internet correlated high with reading but not with text writing. In comparison with other working methods (e.g., conversation, lectures, and seminars), students gave less importance to text writing and working on the computer and on the internet.

Moreover, there are no striking statistical differences regarding the learning and working methods. However, there was an effect of the residence on text writing but it is not yet clear what causes these differences and whether they are punctual or systematical.

The items regarding the use of *online-course-management-systems* revealed conspicuous differences in socio-demographic information. We found statistical relevant differences in the use of online course management systems in males and females. Male students use online course management systems regarding the preparation and follow up of lectures as well as to browse in topics significantly more often than female students. In this case, it has to be noted that the male sample is smaller than the female one; therefore, differences could be explained by this sample composition.

In addition, older students give less importance to practical experiences than younger students. This could be explained through the higher practical experiences of older students; most of them already work as teachers and dispose of several years of professional experiences. This finding can be useful for the future organisation of university study programmes. Recently, in many European universities we can observe an increasing number of older students, who often are career changers or – as it is observable in South Tyrol – in-service teachers without a permanent position at school. The latter need this training for their professional development. Universities should use the knowledge and experiences of these in-service teachers to share

experiences with younger students, who claim for practical experiences. Vice versa, older and more experienced students give a high relevance to theoretical contents of the course of study. Such a combination of study-related attitudes and beliefs from younger and older students could be very fruitful when taken into account in the organisation of study programmes.

While students on the one hand reject the use of online course management systems, which are provided by universities in order to structure and order academic knowledge and hence to make it easily accessible, students on the other hand prefer the use of online media. Apart from the influence of the successful or not successful design of the online-course-management-systems, it may be that students perceive direct online access tools as more convenient and easily accessible by means of search engines like Google and the use of Wikipedia. Again, we find the link to the possible influence of being digital natives; very likely, this has an effect on the way students learn and work.

5. Conclusion, Limitations and Future Research

Knaupp *et al.* already pointed out that research in the educational field highly depends on national and linguistic cultures. The authors emphasised that educational research needs to be “unlocked and... lifted out from national, cultural and linguistic (self-) restrictions to the modernity of academic disciplines”²²; these differences in cultures can be extended to student cultures and the way of knowledge reception and acquisition. Research cultures need to be further studied in different contexts by including philosophical reflections, different study designs with its different epistemological and methodological modes of construction, deconstruction and reconstruction of findings. Hence, further researches should include also other nations such as Austria, Germany and the U.K.

The results of this study with its small sample can be useful to better understand the current changes in learning cultures in the (non-) academic world. The next step is the use of this research instrument in different national, linguistic and academic traditions. This should promise more results regarding learning cultures.

²² Knaupp M., Schaufler S., Hofbauer S., Keiner E., *Education Research and Educational Psychology in Germany, Italy and the United Kingdom – an Analysis of Scholarly Journals*, cit., p. 102.

This research focused on *Erklären* – that is, explanation – whereas *Verstehen* – that is, the understanding – was omitted. As emphasized by Smith and Keiner²³ both approaches are not contradicting and may be used to get a complete picture of an observed phenomenon. Hence, the inclusion of *Verstehen* in studying student cultures might provide new insights. Evidence-based research and their mainly quantitative methodologies gain special importance in social and educational research²⁴. However, this might limit the view on a phenomenon. *Verstehen* is, therefore, to be included in further researches.

From data emerged students' preferences with regard to their learning and working methods, which should now be verified and compared with the results from students from other universities and educational institutions, for instance teacher training colleges. Such a comparison could provide more information on the influence of the digitalisation process. Other scholars, for example Cramer²⁵, found that teacher training students at universities give more importance to the task of teaching compared to students at teacher training colleges. The latter gave more importance to the education task as well as the integration and individual promotion of students. Hence, there may be structural differences among institutions.

Within this study, the relation between students and instructors could not be investigated. However, as pointed out by Jenert, Zellweger Moser, Dommen and Gebhardt²⁶, the interaction between learners and teachers is one of the most evident characteristics of learning cultures. They emphasize the question whether exams focus on giving each student equal development opportunities or on the selection of the “best”. These differences may influence knowledge reception and acquisition and should be further on studied.

²³ Smith R., Keiner E., *Erziehung und Wissenschaft, Erklären und Verstehen*, in „Zeitschrift für Pädagogik“, 5, 2015, pp. 665-682, doi: 10.3262/ZP1505665.

²⁴ Knaupp M., Schaufler S., Hofbauer S., Keiner E., *Education Research and Educational Psychology in Germany, Italy and the United Kingdom – an Analysis of Scholarly Journals*, cit.

²⁵ Cramer C., *Entwicklung von Professionalität in der Lehrerbildung. Empirische Befunde zu Eingangsbedingungen, Prozessmerkmalen und Ausbildungserfahrungen Lehramtsstudierender*, Bad Heilbrunn, Verlag Julius Klinkhardt, 2012.

²⁶ Jenert T., Zellweger Moser F., Dommen J., Gebhardt A., *Lernkulturen an Hochschulen. Theoretische Überlegungen zur Betrachtung studentischen Lernens unter individueller, pädagogischer und organisationaler Perspektive*, 2009, retrieved from http://www.phzh.ch/MAPortrait_Data/163736/17/Lernkulturen_an_Hochschulen_2009.pdf.

A possible implication for universities regarding the media use of students concerns the lack of use of online-course-management-systems by students. Universities should create a concept that promotes the effective use of these systems. Moreover, the interesting finding regarding the different valuation of the practical experience by older and younger students together with the increasing number of older students should be further studied and used for the future organisation of university study programmes; these should consider and re-think these attitudes for a more intelligent handling of the well-known theory-practice problem.

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