ACHIEVING ACTIVE LEARNING AND DEEP LEARNING WITH MEDIA USING THE EXAMPLE OF TEACHING FINANCE

Alexander Zureck
FOM University of Applied Sciences, Germany
E-mail: alexander.zureck@fom.de

Abstract

The range of study programs in finance and the ways how to study due to place, time, and focus has increased in recent years. Students can choose what and how they want to learn. If someone finds an appropriate program he must decide to study face-to-face, online, or in a hybrid format.
Finance is often a duty in business administration or related study programs. For many students in those classes the financial topics are bleak. This leads to a passive consumption of contents and ends often in dropping out.
The aim of this research was to discuss methods to activate and keep learners motivated by using well selected media in teaching. To identify which media is used in teaching, a literature review was done. Teaching annual reports and other official reports available in English and/or German from several international educational institutions are read, compared, and analyzed. Additionally, secondary academic literature is checked for further examples.
In a first step, therefore, different techniques to active students, such as collaboration or interaction, are discussed critically on a literature base. In a second step, based on the techniques, a selection matrix was obtained that supports educators to select the right medium to deal with a certain technique. Many examples were found that might assist educators in the practical use of the selection matrix.
Keywords: *active learning in finance, motivation in higher education, media selection*

Introduction

In 2020, the pandemic situation due to COVID-19 brought the digitalization of education to everyone's attention. Across the globe, many higher education institutions were closed for a long time. Teaching and learning were shifted to online formats. Educators and learners often did not even have the opportunity to meet each other in person. Teaching had to be transformed into new formats within a couple of weeks and established learning environments were disrupted.

Besides the special situation arising out of the pandemic, teaching and learning are changing continuously in recent times. There is a trend for lifelong learning because of permanently changing requirements as viewed from the own job perspectives. Content-based changes and also technology-related changes might constantly affect an individual's job. Academization is another reason why people look for new educational programs.

The individual education has also changed over the last decades. People do not ask anymore for study programs after they have finished school. Today it is normal firstly to go abroad after school or to gather some professional experiences. Some people are also interested in a second or third master's program to qualify for new jobs.

The changing demands of learners affect the educational institutions. There are institutions that continue to focus on the traditional education system with well-known study programs. Others offer study programs tailor-made for working people in general or for certain groups from specific industries. Learners are confronted with a variety of programs offered by various educational institutions.

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There is great interest to earn a new certificate that qualifies one for a new job position. Against this, stands the steady decrease in the academic motivation for adults to finish a study program. Motivation depends on several aspects. Some influencing factors are the nature of study program, job prospects, or the support of own family. Active learners participating in an online study program or in a class are different.

This research focused on how to get learners from higher education institutions activated to learn financial topics by the strategic use of media. Active learning includes the learner in the learning process. Based on a literature review, techniques to get students activated with the selection of the right media to deal with bleak contents should be elaborated.

Today's Expectations for Learning and Teaching in Higher Education

Existing literature shows that academic motivation of adults has been declining over the years (Hidi & Harackiewicz, 2000). Novelty, the unexpected, and new life situations, among others, arouse adults' situational interest and make them aware of their limited knowledge of issues for a short time. Situational interest must be transformed into topic interest as it changes adults' long-term preferences, and they get increasingly interested in the context (Tobias, 1994).

Since the 2000s, situational interests have become more important in the context of learning. Before that, learning was mostly text-based. In the beginning of the 2000s, the learning environment was under the focus of research. New learning materials and strategies were discussed. How to deliver a task to a learner was also a topic of discussion in the context of situational learning (Guthrie & Wigfield, 2000; Hidi & Harackiewicz, 2000; Lepper & Cordova, 1992).

Interest and knowledge have different impacts on learning. Learning benefits more from interest because interest itself supports comprehension processes, imagination, and stimulation of relevant emotional and personal associations (Tobias, 1994).

Learners have many choices to learn today. More and more online distance learning options are being chosen. The enrollments in those programs are increasing by the year, especially in emerging economies such as Brazil, China, or Turkey (Qayyum & Zawacki-Richter, 2019).

They can choose between online and face-to-face settings or may prefer a mixed approach. In regard to the diversity of possibilities, different skilled academic staff for the different settings is needed. Perla et al. (2019) pointed out that for online courses digitally skilled academic staff is needed. Not only the digital professors, but also digital tutors and other supporters are needed. Therefore, higher education institutions must train and evaluate their staff. Finally, educators must be able to teach learners contents from the learners' point of view by using all possible methods that a teaching environment offers.

Online courses are often taken by graduates aged between 25 and 30. They use the online courses to learn new skills or strengthen existing skills for their professional careers (Kaplan & Haenlein, 2016).

In general, there are four different ways how digital media can influence teaching: Learning completely takes place in the digital world; digital media replaces traditional media totally; content-based or feature-based expansion of the traditional offer; and retention of the traditional offer with some replaced media (de Witt & Gloerfeld, 2018). Regardless of the type of media integration, students do not radically change their learning (Saunders & Gale, 2012).

In the U.S.A., distance learning is more widespread than in Europe. Fewer limitations lead to more online programs offered by educational institutions. Until 2005, the number of online programs was limited up to 50% for colleges and universities. This rule was eliminated from the Higher Education Act in 2006 and the number of online courses started to increase (Deming et al., 2012). Before the elimination, 15.5% enrolled in a distance education course and 5.1% did

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the entire program online; and after the change, it was about 20% and 4%, respectively (U.S. Department of Education, 2011). Nowadays, one-third of all students are enrolled in distance education courses in the U.S.A. The percentage of those students who do the entire program in distance learning is about 15% (U.S. Department of Education, 2019).

The most often taken online courses are business programs in the U.S.A. There is a trend that students prefer to enroll in programs of nearby schools. To learn online, students choose the way that best fits their needs and schedules. The younger students especially prefer to complete course-related activities on their mobile devices. If there were no online course, they would enroll in a classroom program. Students think they can also learn soft skills such as critical thinking, problem-solving, writing, time management, teamwork, and oral communication in an online program (Clinefelter et al., 2019).

In 2017, the European Commission published a communication about European higher education in the future. Technology should be used to organize learning and teaching. Flexibility and educator-student interaction should be realized by including open, online, and blended learning. Additionally, digital contents should be used to get students more involved in research. Educators should get professional support to meet the requirements of the digital future (European Commission, 2017).

The real situation is, however, different and teaching as well as learning is not digital in Europe. Half of the European students never use digital media such as software, podcasts, or simulations to learn. Educators do not feel digital-literate and the majority of the educators would like to get more training in using digital media in teaching (Nascimbeni et al., 2019).

In Germany, 5.5% of all students at higher education institutions are enrolled in online programs (Qayyum & Zawacki-Richter, 2019). 23.6% of them are enrolled in business programs. More than 40% of these students are aged between 25 and 34 (Fogolin, 2019).

Summarizing, on average 21.3% of higher education students enroll in online courses. Notably, online courses offered by large educational institutions or state-owned companies are more trustworthy. In countries like Canada, the U.S., or the U.K., a certificate does not indicate whether the program was taught online or face-to-face. In an application process, therefore, employers cannot take the study model into consideration (Qayyum & Zawacki-Richter, 2019).

Online teaching has been established as an alternative or extension. In the past, research on online teaching focused on the medium itself and the use of several tools. Now, the research focuses on content, pedagogy, assessment, and ways as well as strategies to engage students and to make them active learners (Green et al., 2010; Tomas et al., 2015).

Two big disadvantages face the digitization of learning. On the one hand, there is the fear to lose intellectual property rights since educators develop course materials with innovative ideas and original constructs and, on the other, the strict copyright laws deter educators from incorporating digital media into their courses (Guri-Rosenblit, 2018).

Theoretical Framework to Meet Learners' Needs

Active learning is more effective than traditional frontal learning for various subjects, especially, smaller groups of learners benefit significantly from active learning in the learning process (Freeman et al., 2014). Active learning offers educators more space to coach learners individually. Times of presence can be used for coaching the learners instead of losing valuable time in frontal lecturing. Pure knowledge transfer can be realized with videos beforehand. If times of presence are active, students' concentration will increase, and mobile devices will not get too much attention (Loviscach, 2019). Different means to get learners activated are described in the following part.

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Collaboration

Discussions in a face-to-face setting often end in the homogeneity of ideas and meanings. Individuals are influenced by others' opinions and a group opinion begins to form. In an online discussion, people have more time to think. They do not follow ideas of others uncritically. They are not affected by others' behavior especially in the form of gestures and mimicry. Both are transmitted on a reduced level in an online environment (Chen & Looi, 2007).

The staff has a critical role online. Educators must intervene in discussions to get the learners socially engaged. Students need to get timely feedback from educators on their learning progress (Tomas et al., 2015). Today's students grew up with constant collaboration and communication in social media. They expect to get a fast answer as they typically find online. There are fewer inhibitions online and students are not shy of making contact with the teaching staff. For this reason, today's students need continual feedback, and they look for interaction in teaching and extensive collaboration in learning (Saunders & Gale, 2012).

In an online discussion, learners' collaboration is based on content. All participants have an equal opportunity to join a conversation and express their own ideas. Online is less judgmental on influencing factors such as social status, style, accent, or personality (Chen & Looi, 2007). All learners are knowledge creators online. Input from learners supports creating a community and a collaborative learning environment (Abedin et al., 2010; Green et al., 2010; Oliveira et al., 2011).

Collaboration between students is needed for a completely successful and blended learning, and to engage students. Students learn dominantly individually and just need some guidance. Collaboration is needed to improve the learning of an individual. Valuable connections between individuals improve their learning and should be used for special purposes to reach personal engagement and success. If one student evaluates the subject as bleak, collaboration with him is counterproductive (Tomas et al., 2015).

Interaction

An interactive relation between individuals is often based on specific interests. These interests are related to the environment of an individual and might be objects, events, or ideas. They are content specific (Hidi & Harackiewicz, 2000). Technological development is another important factor. New technologies offer different possibilities to learn interactively and provide educators various formats for teaching. Multimedia can be used for interaction and communication. Learners bringing their own devices improve their trust in the new media, the use of which helps to generate new knowledge (de Witt & Gloerfeld, 2018).

The possibility to interact in an online or blended learning setting depends on an appropriate use of information and communication technologies. Limitations lower a student's motivation (Yükseltürk & Yildirim, 2008), whereas earning badges, scores, levels and other gamification elements enhances their motivation and interaction in a kind of competition with other learners (Butgereit, 2016).

Interaction has an impact on the student's success in terms of academic achievement, performance, and satisfaction. Online, there are three types of interaction, for example learner-educator interaction, learner-learner interaction, and learner-content interaction. The quantity of interaction in an online course which influences the effectiveness of the course through persistence and retention (Bolliger & Martindale, 2004; Y. C. Kuo & Belland, 2016).

Learner-educator interaction describes different ways of supporting the learner. It covers guidance, encouragement, and motivational as well as emotional support (Bernard et al., 2009). Learner-learner interaction arises in collaborative activities where students can interact with others in small groups. Students can share ideas and thoughts, thereby learning interactively from

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each other. In higher education, learners benefit from others and their professional experiences (Battalio, 2007; Y. C. Kuo & Belland, 2016). Learner-content interaction improves learner's understanding and cognitive thinking ability including capabilities like critical thinking and problem solving. The learners connect their life experience to theoretical concepts (Bernard et al., 2009). Thus, learner-content interaction covers the feature of media selection and the nature of learning and instructional design as well (Y. C. Kuo & Belland, 2016).

The challenge in the case of learning is to entice learners to take part actively in an online discussion. The progress of a class, however, is stopped by too much discussion without any results. Thus, postings should not be task orientated only. At the end, not everyone can be activated with a discussion if it is not compulsory practice (Chen & Looi, 2007).

Motivation

Individuals' motivation to learn depends on interest and goals. These factors influence learning expressively (Tobias, 1994). Intellectually engaged students ask questions and develop critical thinking over ideas and concepts; and it also sharpens their general thinking linked to their chosen disciplines. They are open to multiple perspectives on their topics (Pittaway, 2012).

Purposefully used online pedagogies and resources can support learning. Learners can improve, for example, their capabilities in conceptual understanding, scientific literacy, and sustainability (Tomas et al., 2015). Gamification accelerates thereby motivating, engaging, and activating a learner (Butgereit, 2016).

Motivation and engagement in a course depend on the participants and the course itself. Besides, what also matters is the organization of the course including its assessment and pedagogical framework. The provision of citing case studies as authentic examples enhances the engagement and motivation of a learner (Tomas et al., 2015).

Learners' intrinsic motivation is driven by commitment, challenge, control, competition, and contemporaneity. Commitment is formed by a larger group and the individual must believe in belonging to the group. A participant list with names and pictures supports this aspect in an online course. The challenge is that the course should not be too easy or difficult for the entire group of participants. Control deals with the feeling of an individual. Individuals want to control their environments. This is easier in an asynchronous online course because the individual determines the pace of learning. Learners need competition while collaborating with others. Gamification with points or badges for tasks creates a sense of competition between the participants. Contemporaneity arises by modifying an online course with daily updated contents from newspapers and video platforms, or contents created by students themselves (Gottfried, 1985; Kaplan & Haenlein, 2016; Rieber, 1991).

Intensification

The requirements for workers in high-qualified jobs have changed over the last few decades. Today, a lot of work that requires routine skills is done by computers. For other tasks, workers must critically think about specific issues, and they must have a sound understanding of the context (Levy & Murnane, 2004).

In jobs for highly qualified people other skills are required. These people must be able to find and process information to make decisions and to generate new ideas. People must have a look at the details while, at the same time, easier tasks can be run by computers. Thus, these people require critical thinking and deep understanding capabilities (Silva, 2009).

Problem solving on a high level requires people to think critically and to deal with different perspectives. New things are often created when individuals with different perspectives give their input to the problem; and especially, mavericks in a group with a good mood have positive impacts on problem solving (Hayashi, 2018).

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Memorization

In research and society, there is a long debate on the reading of printed and digital texts. Research underlines the fact that printed texts have many advantages as they help deep comprehension and retention of texts. Printed long texts have a positive impact on concentration, vocabulary, and memory. However, this is not always true as, finally, all these aspects depend on the individual's capabilities, skills, and assessment (E-READ, 2019).

Readers skim over a text more often if it is digital. They are often under pressure and skimming is the consequence of a lower concentration on the contents (E-READ, 2019). This effect is bigger when a reading time limit is imposed (Delgado et al., 2018; E-READ, 2019).

Informational texts use academic vocabulary and often they are not connected to real world issues. Both points have a negative impact on the comprehension of informational texts and require a higher level of processing (Graesser & McNamara, 2011).

Printed and digital texts have their own advantages and disadvantages of learning. Educators must consider these aspects before they use both kinds of texts. If the right media is used in the right aspect, media equivalence is possible (Delgado et al., 2018).

Analogously, there is a difference in taking notes. People can memorize contents better after making hand notes than by using a computer keyboard or a touch-screen keyboard. However, there should be a balanced mix of handwriting and digital writing because digital solutions have proven to be necessary in today's daily learning and business life (Frangou et al., 2019).

Formal and Informal Learning

Formal learning focuses on learning and teaching based on a curriculum created by educators and approved by an official institution. It often comes with a given schedule, learning contents, materials, and activities. Informal learning does not have a curriculum and learners do not feel to be in a learning situation (Livingstone, 2012). Informal learning often happens when learners are engaging or interacting with others. It is self-directed, unplanned, and unorganized. Smartphones and tablets, for example, offer new options to learn anywhere at any time. Informal learning can be blended with or dissolved into formal learning (Elsafi, 2018). The blurring of the two is an advantage. Institutions can provide required knowledge and skills facilitating formal learning. It is complemented by informal learning where learners can stick to contents in a self-directed learning regime (Sangrà & Wheeler, 2013).

Informal learning is crucial for lifelong learning, and it includes a motivational factor driven by the learner's personal interests (Wong, 2013). It is often no learning for the learner because there are no learning goals, learning environments, or design. The learner just wants to develop individually (Dilger et al., 2019).

In the following figure, different means to activate learners are briefly presented. A mixture of different possibilities might be the best strategy to get learners actively involved in teaching:

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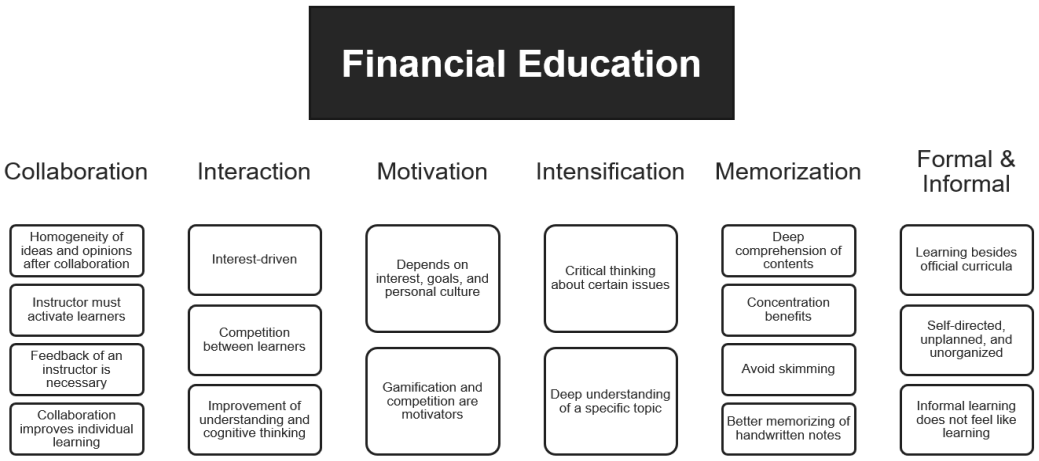
Figure 1
Techniques to Activate Learners



Reaching Learners' Needs in a Blended Learning Setting

Digital Literacy

The change in the standards of teaching requires digitally literate staff in education institutions. Digital literacy is more than an ability to deal with digital tools. It is complex and socio-culturally sensitive and situated practices and attitudes are required to address it. Digital tools must be used for the interaction and collaboration with learners and others (Martin, 2008).

Digitally literate educators can deal with the following three points in their teaching (Perla et al., 2019):

- Content: Identification of the fundamental subjects for learners,
- Transdisciplinarity: Use of fundamental subjects in a particular context,
- Digital transdisciplinarity of contents: Transmission of fundamental subjects in a particular context to digital media.

Digital transdisciplinarity of contents helps learners to memorize and represent contents. Digital media helps to generalize contents and understand issues related to a specific situation (Oleson & Hora, 2014).

Learners enrolled in an online course need respectable computer literacy skills to meet all the requirements of the program in terms of tasks and examinations (Bennett et al., 2008).

A satisfied student will finish an educational program with good performance, and he will promote the program afterwards. There is an interlink between satisfaction and academic performance (Chang & Smith, 2008; Reinhart & Schneider, 2001). The possibility of interacting in an online course influences student satisfaction critically (Y.-C. Kuo et al., 2014). Besides this, the content arrangement, document layout, access to contents, and the use of digital media have influence on student satisfaction (Havice et al., 2010). The useful implementation of digital media in a course facilitates understanding of certain contents and improves the cognitive schemes of learners (Y. C. Kuo & Belland, 2016; Wanstreet, 2006).

Learners in a distance learning setting can be separated by place and time. Focusing on the time, they can learn at their own pace. It is asynchronous distance learning. If they learn together with others, it is synchronous distance learning (Kaplan & Haenlein, 2016). Distance learning is often associated with online learning on a computer or a mobile device but finally distance and online learning are not the same. Generally, there is a wider range of media that

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can be used to teach students not learning at the same place: letter correspondence, radio, TV, mobile device, the Internet, and others (Kaplan & Haenlein, 2016).

Blended learning is a mixture of teaching and self-learning. On the one hand, learners get the opportunity to add contents and to focus on certain things that are relevant for them. On the other hand, they can skip unimportant contents. Contents and learning itself must fit the learner's context and needs (Masie, 2005). This leads often to a greater motivation for the learner. Learning appears to be related to the learner's real world (Garrison & Vaughan, 2007).

Learners can focus on their needs, interests, and personal backgrounds in blended learning. Delivering and providing feedback on the personal progress is the task of the educator in such a setting. Feedback can be given face-to-face or online by a learning management system, discussion forums, or e-mails (Milad, 2019). Video conferencing tools are also usable to give a direct and personal feedback to a learner. They offer the advantage of referring directly to certain documents while using the software.

Blended learning has advantages for learners who are shy or do not like to be in a certain group of learners. Most of the time, people can learn what they want (Milad, 2019). Blended learning offers, in general, a lot of individuality and fits the needs of the learners. Gender differences can be respected. For example, women like to have more interaction with the educator than men do. Women like a combination of understanding, empathy, and acceptance (Rovai & Baker, 2005). Adaptive hypermedia is the best way to reach everyone and address individual needs (Brown et al., 2005).

Bloom's taxonomy is an often-used model to create contents or exams for classes. There are also different apps and web tools that can be used in an educational setting to teach and learn. The choice of tools is quite broad, and it varies from operating to operating system (de Witt & Gloerfeld, 2018; Schrock, 2011). In general, blended learning has impacts on critical and higher-level thinking skills. This includes, among others, skills such as comparing, classifying, deducing, analyzing errors, and abstraction. Learners learn to transform the learned information to use it to get a certain task done (Garrison & Vaughan, 2007).

Research Methodology

The study was a literature review where previous work on the topic and additional documents from several institutions have been thoroughly analyzed and critically evaluated. Research reports from higher education institutions, presentations of teaching and learning concepts as well as quality reports for example are covered by the analyzed documents.

The best practice examples were directly retrieved from the higher education institutions via Google or as they were found in other scientific papers. In search, the following keywords were used in English and German in a variety of combinations: Accounting, Annual, AR, Augmented Reality, Banking, Bericht, Betrriebswirtschaftlehre, Blog, Business, CBT, College, Computer Based Training, Facebook, Fachhochschule, Finance, Finanz, Finanzen, Finanzierung, Higher Education, Hochschule, Instagram, Internet, Investment, Jahresbericht, Lehrbericht, Lehrbericht, LinkedIn, Online Course, Planspiel, Podcast, Report, Simulation, Social Media, SozialeNetzwerke, Stock Market, Teaching, Twitter, Uni, Universität, University, Virtual Classroom, Virtual Reality, VR, WBL, WBT, Web Based Training, WebbasiertesLernen, Webinar, Wirtschaftswissenschaften, and Xing.

All documents were analyzed qualitatively. The given examples were searched on the internet and were reviewed critically. The review was focused on the question whether the example is fitting to the teaching of financial contents and whether it is fitting to teaching in a higher education setting.

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Research Results

The European Commission (2017) pointed out that educators needed professional training to be prepared to work in a digital future. The Universidad Internacional de La Rioja (UNIR) created with partners from several countries a course where higher education educators can gain the experience of working with information and communications technology in teaching. The participants are induced to use digital media in the course. It is an attempt to make educators think about the possible implementation of the media in their daily work (Nascimbeni et al., 2019). Choosing the educators is essential for digital media to be introduced into the course. Educators, like all people, are creatures of habit and have a delayed reaction to change.

The use of digital media promotes the creativity of teaching in blended learning (Milad, 2019). It can be divided in textual, visual, and audio content (Mayer, 2002). The learning is improved by using real-life material and input. Interdisciplinary and cross-curricular materials encourage learners' motivation (Govindasamy, 2002).

Most of the currently enrolled students are digital natives and they know how to use digital media. They like to work with digital media and spend a lot of time on working with useful tools. Most students are strategic learners and stick to media they are familiar with. New technologies do not change the learning methods of students rapidly. Finally, learners are strategic learners and choose those media that enable them to pass a certain course (Saunders & Gale, 2012).

Social Media

In general, social media, especially microblogging with Twitter is used by universities to reach out to the target group at eye level. The target group receives information about study-related events, contents, and multimedia from the university (Hochschule Merseburg, 2018). It is also used to reach out to people outside the university. For example, the public can get direct information from conferences. Discussions about lectures or other contents can also take place in social media (University of Exeter, 2019).

Social media allows learning outside a classroom without any divide between formal and informal learning (Gao et al., 2012). In a finance course, social media can be used to intensify personal interests. Financial communities with a specific focus, for example, on stock movements can motivate a student to develop interest in the topic.

To get interaction in class, Twitter must be used in small groups. In larger groups, followers just consume information without adding any information on the network (Lowe & Laffey, 2011). Twitter has the potential to develop a sense of social presence between students and the faculty person. Because of this, the integration in online learning settings is useful to get learners socially and emotionally involved in the group of learners (Dunlap & Lowenthal, 2009). Generally, in a finance class Twitter is useful for introducing currently discussed topics to the class. The educator shares articles and other media about related topics with the learners. In the class, the educator uses the shared information to explain contents based on the tweets.

The integration of micro blogging into teaching needs a strong curriculum orientation. Tweets must have a direct relation to the curriculum and a frequency is needed to get Twitter implemented in teaching. Twitter cannot replace other types of teaching. It is a supplement that enriches learners with additional and especially current information (Lowe & Laffey, 2011). The use of Twitter in a class can be realized as it is used in a conference context. Learners can follow course-related topics with a specific hashtag that is used by an educator for the course. One hashtag for one course is the challenge for using Twitter in a specific course. All involved people must use this hashtag for all related tweets. Furthermore, social media is useful for holding a fast poll in class on learners' expectations about stock performances. The advantage

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of using social media in comparison to pure discussions in class is that the information is saved on the internet. The educator has the opportunity to go back to certain information later in class. Finally, all tweets and contents are publicly available on Twitter.

In small groups, social media can be used in addition to physical group collaboration. Groups can meet online in addition to physical meetings on platforms such as Facebook to contact other group members and to collaborate on certain tasks (Saunders & Gale, 2012). Collaborating on a prominent platform, for example Facebook, allows sharing of contents also with third parties such as friends and family. Those people are not part of the education institution's internal platform. Future learners can also benefit from publicly available content. Saunders & Gale (2012) pointed out that students asked for continual feedback. Social media can be used by an educator in a classroom or out of it to give students feedback or to get some on the learning process. Twitter can be used to provide information about certain topics to learners or to discuss a current topic in class. Facebook offers the possibility that information is kept in a group and others can check the information as and when required.

Wiki

A wiki can be a knowledge database that is made by a group of learners. In comparison to social media such as Twitter or Facebook, it has more power for performing complex tasks. Social media has advantages if fast reactions or sharing are needed. Wikis have advantages if contents are to be developed step by step over a period. Bryant & Albring (2006), therefore, state in this context that learning contents must be divided into a certain number of tasks. Learners can work on their own tasks and, taken together, these tasks are the sum of the general task. Learners can improve the contributions of others directly online on the wiki. The collaboration and the interaction between the learners improve the final output. At the end, the wiki is a database that covers all topics related to the lecture. For finance, it can be a collection of topics such as industry, analysis, valuation, acquisition and so on (Bryant & Albring, 2006). In a certain class, a wiki can be used to create an analyst report with a recommendation to buy, hold, or sell a stock. The final document and the recommendations are the output of a collaboration on a wiki.

A wiki is a collaboration platform where learners can instantly present their opinions and thoughts primarily without getting influenced by others' opinions and without forming a group opinion (Chen & Looi, 2007). As previously mentioned, a typical task in a finance course is to prepare a financial analyst report including the valuation of a certain company. On a wiki, learners can present their ideas and interpretation without being influenced by the educator and other learners on this task. In comparison to a single result presentation in class, the advantage of a wiki is the possibility of others to comment directly on the work of others. All these comments are visible so that changes are traceable, and everybody can take the time to think about content. No direct feedback as it happens in class is needed. The educator is always like a coach. He can give feedback on several ideas and can support the results with his experiences. According to Tomas et al. (2015), the educator must ensure that learners are socially engaged and make their contributions.

For example, for the preparation of a financial report, each student must work on a certain task by writing a text for the wiki. The text will be available online and readable for everybody. This is positive pressure to concentrate on the task and it intensifies the understanding of the contents. The contents will move to the long-term memory.

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Blog

It is easier for a single educator to setup an internet blog and use it in a course than using a wiki. The operation of a wiki needs some IT resources and some advanced skills for the first setup if no general setup in Moodle or elsewhere is made by the education institution to facilitate it.

In a finance course, internet blogs can be used to prepare a class for complex tasks in the final exams, such as a small case study. The educator can put the task as a post on the blog. Each student can interact by writing an answer to the task. The educator can select the answer that should be presented in class. The class can use all individual posts to work on a final posting that can be the best answer to the given task. This type of preparation has advantages for learners working in a foreign language. Students can take the time they need to work on the task (FOM Hochschule, 2017).

Many people publish their individual financial success stories on blogs. There are many internet blogs with a focus on retirement or the FIRE movement (mrmoneymustache.com or junginrente.de) that motivate students to deal with specific topics. Stories of others can be interesting for a student's own strategy when the parameters match.

There are also some blogs on the internet that deal with specific financial instruments or techniques for investment (dividendenadel.de or vermietertagebuch.com). These blogs can motivate a learner, but mostly learners can be interested in using a certain financial instrument while reading the blog. The blog shows the practical use of the financial instrument that was discussed theoretically in class.

Video

Videos can be used to deliver general information to learners. They can inform about a study program, a specific major, or the university in general (Hochschule Merseburg, 2018). Videos are comparable to frontal lecturing. Today it is the best way to use videos to prepare learners for the next meetup. Educators can use the meeting time to coach learners with open discussions or individual feedback. Theoretical basics can be delivered through a video.

Recording and streaming of lectures on the internet is useful for learners to follow the contents of the class if a student is unable to attend the class. Recordings of lectures are useful as lecture wrap-up to prepare for exams in challenging subjects and for students with less experiences in learning, such as first-year students (Tomas et al., 2015). In finance, videos can be used to deliver theoretical topics, such as the basics of the capital asset pricing model, to learners. If the learners have watched a video before the next meeting in class, the educator can use the time for an open discussion about the use of the model in daily practice (Fyfield et al., 2020).

Like blogs, videos can be motivating when they include documentary contents or a success story of someone. Movies such as the Wall Street from 1987 engage students to deal with the discussed topics. The story around the relevant topic in the sense of learning finance lets students occupy themselves with the topic to understand the entire issue in the movie.

Podcast

Podcasts are mostly followed on a smartphone by younger people aged between 18 and 34. More than 50 percent of them generally listen to podcasts and about one-third listen to them while using public or private transportation. People listen to podcasts mostly while having a coffee, walking their dogs, doing the laundry, or cooking. They prefer podcasts that inform and entertain. Podcasters use narratives to reach out to listeners (Newman et al., 2019). Podcasts can

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be used in the context of finance to motivate students. An interesting story of someone's life or experiences, therefore, must be told as was previously described for blogs. In comparison to a blog, podcasts offer the choice of listening to the contents while doing other things.

In Europe, 75 percent of higher education institutions have their lectures available as videos or podcasts. It is the easiest feature of digital learning and is widely accepted (Gaebel et al., 2018). Podcasts are produced by the university, or they are produced in classes. The production of a podcast is a new didactic tool in higher education (Hochschule Ansbach, 2019). The recording of a lecture can be used to put emphasis on taught contents. Podcasts of lectures are strong means to emphasize taught contents and offer the choice for students to get familiar parallelly with new contents and a new medium.

The University of Melbourne runs its own podcast called The Policy Shop. It was launched in 2016 to enhance in the listeners leadership qualities and community awareness. The focus of the podcast is on Australian and international policy (University of Melbourne, 2017). Higher education institutions use podcasts to offer additional academic expertise from university members and experts to students and other listeners. Researchers and guests are interviewed to share information on their careers and successes (Chemnitz University of Technology, 2018; University of Melbourne, 2017). Such expertise in combination with the used story telling in a podcast strengthens the anchoring of the subject matter in the long-term memory of a listener. Stories are often perceived as pictures in someone's mind, and this can be remembered easier than written texts and hard facts.

The University of New England holds a collection of more than 200 podcasts and vodcasts in its library to support learning. The contents cover subject-related topics and help topics such as how to use Google Scholar (University of New England, 2010). Podcasts are useful in reaching out to a great number of learners formally and informally. They can be used to repeat contents or to deepen student understanding with practical examples (Schwaiger, 2012).

Podcasts are used to convey extra-curricular content to students. The Indiana University uses podcasts to improve students' personal finance skills (The U.S. Financial Literacy and Education Commission, 2015). The University of Cape Town uses podcasts to help non-native students understand contents written in English which are not their first language. It is part of a multilingual concept (University of Cape Town, 2017).

The Macquarie University stays connected with former students through podcasts. It provides the alumni with new information about the university, contents, and other things (Macquarie University, 2011). The Hochschule Merseburg uses podcasts to present careers of alumni to currently enrolled students (Hochschule Merseburg, 2018).

Web Based Training

Web Based Training (WBT) is used to combine different learning formats into one tool. Collaboration and interaction tools complement traditional materials such as presentations, texts, or videos. Tests are another medium that can be integrated on a WBT. Educators can see who attend the test and the candidate's performance (Privatuniversität Schloss Seeburg, 2011).

Among others the La Trobe University entered into a partnership with LinkedIn Learning to provide their staff, students, and alumni access to this professional development platform (La Trobe University, 2019). Online courses from a university can also be used to share them with other partner universities, that is for efficient doctoral training (University of Oulu, 2017).

The Royal Holloway University of London is offering a massive open online course (MOOC) with its focus on open data and open innovation. Learners get to know how companies can create new business models, products, and services on freely available data (Royal Holloway University of London, 2018).

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The Keiser University is offering a library training to its students online. Students can easily access the library's collections and the reading list. Furthermore, students can also use other web-based research databases (Keiser University, 2020).

In the field of finance, WBT can be used to train learners how to use specific software such as Bloomberg or Refinitiv. These skills are essential for the learners but the explanation of the technical procedure for using the software takes too much time in a lecture. The advantage of using WBT for this purpose is that some contents in the WBT can be replaced individually. The software providers often change some details and a WBT can be modified to consider also those changes.

Webinar

Classes get the opportunity to meet online. Webinars are used to prepare or follow up contents from lectures in class, for feedback, presentations, discussions, and group work. Educators from abroad can join in easily on the webinar. This makes teaching international and flexible (Privatuniversität Schloss Seeburg, 2011).

In the context of finance webinars can be used by educators or by learners. Educators can use webinars to support learners, for example, during the preparation of their theses. Learners can use webinars to collaborate on certain documents. Also, the transmission of video and audio allows one to interact with others in a conversation. Breakout sessions and group work can be extra-motivating for some students.

Game

Digital games greatly help learning. To be beneficial, the game must be goal-orientated, engaging, motivating, and must lead to critical thinking. A good game provides users with continuous feedback on their performance and allows them to get control over the learning environment (Denham & Guyotte, 2018).

Games generally motivate people to explore new things. Often people try to apply their learning from games to the real world. Games and interaction with others in the game can influence the behavior of the players. Also, games are motivating, and they support engagement (Liew et al., 2018). Serious games are directly developed for learning purposes. However, there are games that lack seriousness, but they also support learning in an informal way.

Games such as CASHFLOW by Robert Kiyosaki can be used in a finance class to develop a general understanding of personal finance and of the influence of debts on personal wealth. Additionally, students learn the basics of investment from the game. The game offers different strategies to become financially independent. The way is a competition and interaction with others where learners can learn intensively from each other's financial decisions.

Simulation

Simulations are used to analyze and learn a process in a company. Furthermore, management decisions can be simulated in different market conditions. Simulations include a closed market with different market players. Learners play different roles over some years in the simulated surrounding (Schwaiger, 2016). Entrepreneurship as well as established businesses can be the subject of the simulation (Hochschule Hamm-Lippstadt, 2018; Schwaiger, 2016). Learners must collaborate and interact with others in the simulation to be successful at the end. The collaboration and interaction in the group support formal and informal learning. Covered contents are learned in the simulation but the students also informally learn about decision-making and collaboration in groups. Along with the hard facts about the simulation's topics, the students also get some soft facts that might be beneficial to them in the future.

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In the field of finance, stock market simulations are used to improve a learner's stock market knowledge and the general business knowledge. In a given period of time, learners have to generate the highest returns to win the competition (Hochschule Hamm-Lippstadt, 2018). Competitions are often organized by companies or non-profit organizations. Education institutions use these external educational services (EFMD, 2019; Planspiel Börse, 2020). Learners become investors and they learn how to struggle with emotions and risks while investing in certain stocks. For the learners, a good performance while playing the simulation might be a motivator behind investments in real assets such as stocks. Simultaneously, mistakes made in the simulations help avert mistakes in real-life investments (Liew et al., 2018). Learners recognize their behavior patterns, and this affects future trading and investment, especially in the real world. They improve their learning about volatility and other market effects on daily investing and trading in the simulation.

Software can be used to simulate different models in macroeconomics. Students run practical simulation exercises to understand political decision making by central banks such as the ECB or the FED (Institute for Monetary and Financial Stability, 2019). Fidelity Labs uses virtual reality to visualize these computational models to make them more understandable. With gamification, financial issues should be more comprehensible to learners and customers of the financial industry (Aldridge et al., 2019).

Book

Young people or especially digital natives prefer to read digital texts. They feel more comfortable with these media and, armed with their digital experiences, they think they can better handle digital media. For medical texts, it is proven that comprehension is better when these people read printed texts (Singer & Alexander, 2017). The results, however, cannot be confirmed by other studies at all. The quality of the digital media including the digital equipment of a learner has impacts on comprehension. For younger students at a secondary school no differences between the digital and printed could be observed (Porion et al., 2016), whereas for linear narrative and expository texts the performance of young students was better for printed texts (Mangen et al., 2013).

For younger learners, no differences in comprehension and memorization are observable for paper-based and digital texts. Other criteria such as learning context, experiences, familiarity etc. have even more significant impacts than the medium (Porion et al., 2016). Generally, skimming and scrolling are important factors that influence the understanding of contents. Learners more often skim over digital teaching media (Akkoyunlu & Soylu, 2008; Mangen et al., 2013). Thus, textbooks in finance can be a good backbone for learners that have problems due to skimming and scrolling. Finance topics are not often popular with learners. This prompts skimming and scrolling. Learners can use textbooks additionally to avoid skimming over important contents.

In financial education, textbooks can be used to deepen the understanding of certain contents. Books such the "Richest Man in Babylon" by George S. Clason can improve the understanding of general financial topics. Story telling in such a book has positive impacts on memorization.

The explanations above show that there are different instruments and media which have a positive impact on active learning. The combination of instruments and media is summarized in the following figure. This figure might be an orientation for an educator to select the right medium in class and online:

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Figure 2
Selection Matrix

Technique / Medium	Collaboration	Interaction	Motivation	**Intensification**	Memorization	Formal & Informal
Social Media	X	X	X			X
Webinar	X	X	X			
Wiki	X	X	X	X	X	X
Simulation	X	X	X	X	X	
Web Based Training	X	X		X		
Blog		X	X	X		X
Game		X	X	X		X
Video			X	X		X
Podcast			X	X	X	X
Book				X	X	

Conclusions and Outlook

This research shows how learners can get activated by a strategic use of media in teaching finance. Learning finance is for many learners a big challenge because they are not interested in the topic. Media diversity is the best way to get learners interested as each medium supports different parts of active learning. Learners become curious individually since the usefulness of one medium in activating them depends on the situational interest of individual learner in the topic.

It was elaborated that in social media, an internal or external target group can get information from an educator or an institution to collaborate or interact with others or to enhance certain content or to memorize important things. Learner's own selection of contents, persons, and channels makes social media an individualized learning tool that motivates people and supports formal and informal learning.

This investigation shows that in comparison to social media, wikis offer the possibility to collaborate and interact intensively. Well-chosen individual tasks can motivate learners to bring in their results to reach a group goal. Single contributions to a wiki can be modified by others to improve the final quality of the output. Wikis are publicly available, and everybody can look up specific topics repeatedly. The random reading of articles in a wiki can contribute to formal and informal learning.

The analyzed examples show that the setup of a blog is easier than that of a wiki. Learners can comment on the contributions of others in order to interact in a group of learners. Published success stories motivate people to deal with a topic informally. Working on tasks on a blog supports self-paced learning and improvements in content submitted by a learner. Finally, the examples show that learners can deal with a certain task in greater depth.

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As a conclusion from this investigation educators should use videos formally to deliver contents before they meet learners in person. With a video, the educator can also refer to things that the learners should already know from previous courses. Live sessions should be used to coach the learners and videos should be used before those sessions or in a short version in the session to explain contents from a different point of view.

Research shows podcasts are a learning tool that can be used additionally. They can provide learners with a motivating content, such as interviews with successful people, to motivate students to deal with a topic. A podcast shares many similarities with a blog except that it engages another sense organ. Listening to an interview with an expert in a specific area helps the enhancement and memorization of contents. Listening to a podcast show for a certain topic is also a kind of informal learning.

Online and board games offer learners the possibility of interacting with others and learning from their decision making. Playing a game mostly in a competition is a motivator for many. The post-game analysis of chosen strategies to win often ends in an improvement in learned contents. New games are often tested randomly by players and that is why they offer a good possibility for informal learning. The purposes of learning are often not in focus.

The given examples show that in contrast to games, simulations are long-term orientated. Learners can improve on their decision making by collaborating and interacting with others over several played periods. Playing with others promotes competition between players. Through gamification, learners can enhance contents and learn about impacts of certain decisions. The memorization of lessons learned and decision making can lead to better decisions in the real world.

Browsing and scrolling have a negative impact on the general understanding of digital contents. Textbooks help to enhance complex topics and to memorize important things for a long time. Reading a book is time-consuming and forces the reader to concentrate on a specific topic. Good storytelling supports memorization, too.

All in all, the examples discussed in this paper give different insights how to use different media in teaching. The described techniques to active learners in combination with the selection matrix presented in Figure 2 support educators to find the adequate tool to get the students activated in any teaching setting.

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Alexander Zureck PhD, Professor for Banking & Finance, isf Institute for Strategic Finance at FOM University of Applied Sciences, Leimkugelstr. 6, 45141 Essen, Germany.
E-mail: alexander.zureck@fom.de
Website: https://www.fom.de/en.html
ORCID: https://orcid.org/0000-0002-4596-209X