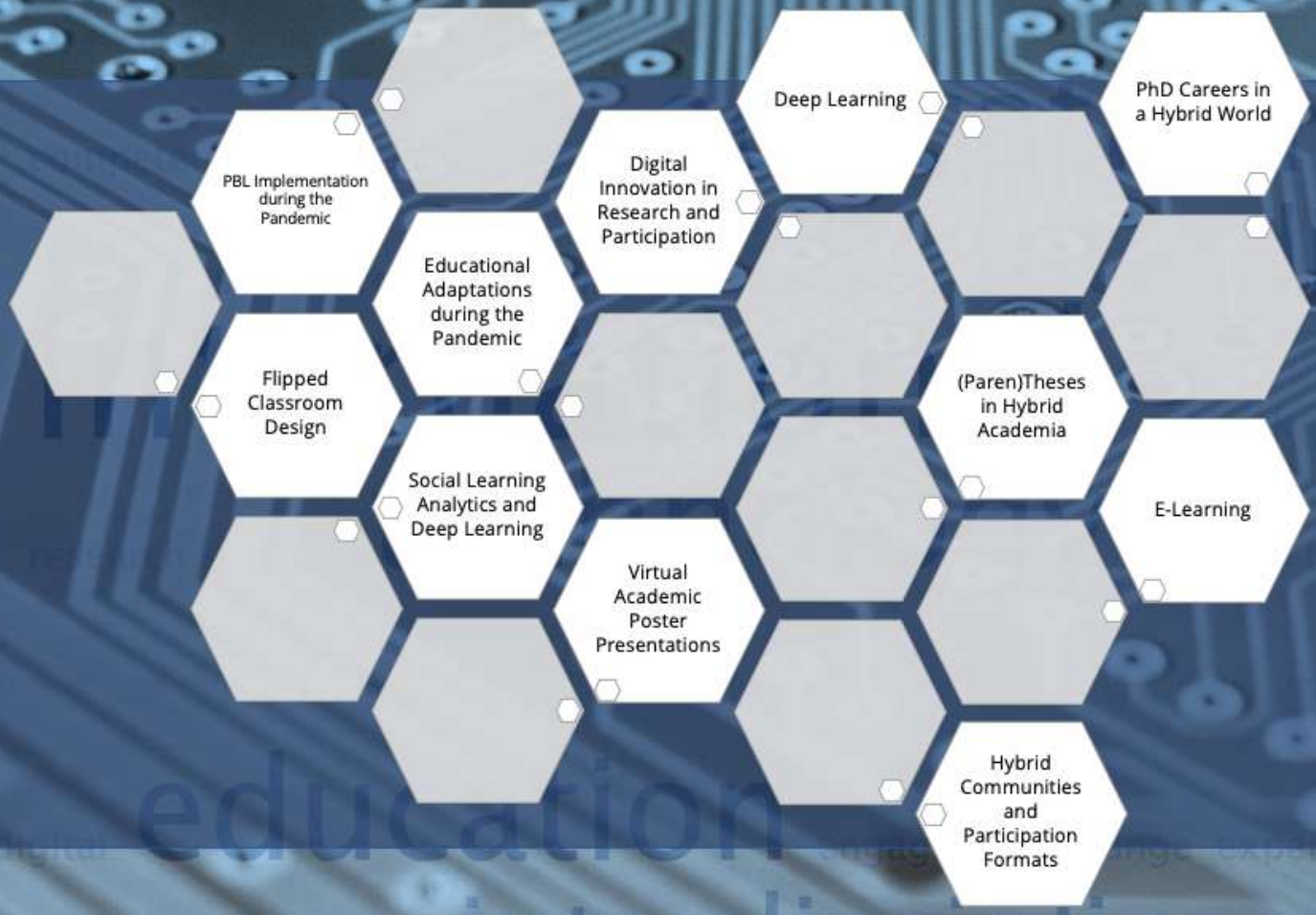
# Summer School

## Education and Technology in Hybrid Formats and Worlds

## 3-8 October 2021




Université franco-allemande
Deutsch-Französische Hochschule

TECHNISCHE UNIVERSITÄT DRESDEN

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# Faculty Members

Prof. Dr. Petra Traxler - PH Linz

Prof. Dr. Thomas Schöftner - PH Linz

Prof. Dr. Thomas Köhler - TU Dresden

Prof. Dr. Eric Schoop - TU Dresden

Prof. Dr. Pascal Marquet - University of Strasbourg

Prof. Dr. Daniel Apollon - University of Bergen

Prof. Dr. Myriam Coco Uni - University of Bergen

Prof. Dr. Bruri Triyono - Yogyakarta University

Prof. Dr. Mario Gandra - University of Rio de Janeiro

Prof. Dr. Omid Fatemi - Tehran University

Dr. Maud Ceuterick - University of Bergen

Daniel Jung, M.A. - University of Bergen

# Arriving

When getting around Dresden, please use **public transport**. Upon arriving at the conference, you will be given a weekly ticket, which you can use to access buses, trams and trains within Dresden. Please do not forget to stamp your ticket when boarding the train or bus for the first time.

***If you decide to take a taxi, you will be responsible for the costs incurred.***

This ticket is valid for fare zone A. For more information on how to get to a particular destination, please visit the following website

https://www.dvb.de/en-gb/

or download the app

https://play.google.com/store/apps/details?id=com.cidana.dvbt2.eachnplayer&hl=es&gl=US

## Getting to the hotel

### Cityherberge

Address: Lingnerallee 3, 01069 Dresden

Nearest stop: Pirnaischer Platz , Deutsches Hygiene-Museum

Taxi: Fare from airport ranges from 29-34 EUR (depending on arrival time and traffic)

Train: Take the S2 train towards *Pirna Bahnhof*. Get off at *Bahnhof Mitte*. Take tram line 2 towards *Kleinzschachwitz* and get off at *Deutsches Hygiene-Museum*. The hotel is an 8-minute walk from the stop.

Bus: Take the 77 bus towards *Infineon Nord*. Get off at *Infineon Nord.* Take tram line 7 towards *Pennrich* and get off at *Pirnaischer Platz*. The hotel is an 8-minute walk from the stop.

### ibis Dresden Zentrum

Address: Prager Str. 5, 01069 Dresden

Nearest stops: Hauptbahnhof, Hauptbahnhof Nord and Walpurgisstraße

Taxi: Fare from airport ranges from 29-34 EUR (depending on arrival time and traffic)

Train: Take the S2 train towards *Pirna Bahnhof.* Get off at *Hauptbahnhof*. The hotel is a 10-minute walk away.

Bus: Take the 77 bus towards *Infineon Nord*. Get off at *Infineon Nord*. Take tram line 7 towards *Pennrich* and get off at *Walpurgisstraße*. The hotel is a 5-minute walk away.

## Opening day - October 3

**Location: Technische Universität Dresden, Hörsaalzentrum, Room 208 (Second floor),**

**Address: Bergstraße 64, 01069 Dresden**

Nearest stops: Technische Universität, Nümberger Platz

Taxi: Fare from city center ranges from 12 -14 EUR

***Arriving from Cityherberge***

Tram: From *Pirnaischer Platz*, take either tram line 3 towards *Coschütz* or tram line 8 towards *Südvorstadt.* Get off at *Nümberger Platz*. The building is a 10-minute walk away.

Bus: From *Pirnaischer Platz*, take the 360 bus towards *Kurort Altenberg Bahnhof* or *Possendorf Hauptstraße*. Get off at *Technische Universität*. The building is a 4-minute walk away.

***Arriving from ibis Dresden Zentrum***

Tram: From *Walpurgisstraße,* take either tram line 3 towards *Coschütz* or tram line 8 towards *Südvorstadt*. Get off at *Nümberger Platz*. The building is a 10-minute walk away

Bus: From *Hauptbahnhof*, take either the 66 bus towards *Mockritz* or *Freital-Deuben* or the 360 bus towards *Kurort Altenberg Bahnhof* or *Possendorf Hauptstraße*. Get off at *Technische Universität*. The building is a 4-minute walk away.

## Summer school week - October 4-8

**Location: HTW - Hochschule für Technik und Wirtschaft Dresden, Room S 409 (fourth floor in building S)**

**Address: Friedrich-List-Platz 1, 01069 Dresden**

Nearest stop: Hauptbahnhof

***Arriving from Cityherberge***

Tram: From *Pirnaischer Platz*, take either tram line 3 towards *Coschütz* or tram line 8 towards *Südvorstadt*. Get off at *Hauptbahnho*f. The building is a 5-minute walk away.

Bus: From *Pirnaischer Platz,* take the 360 bus towards *Kurort Altenberg Bahnhof* or *Possendorf Hauptstraße*. Get off at *Hauptbahnhof*. The building is a 5-minute walk away.

***Arriving from ibis Dresden Zentrum***

Tram: From *Walpurgisstraße*, take either tram line 3 towards *Coschütz* or tram line 8 towards *Südvorstadt*. Get off at *Hauptbahnhof*. The building is a 10-minute walk away.

The building is an 11-minute walk from the hotel.

## GENEME - October 8

**Location: FD - Fachhochschule Dresden Room 3**

**Address: Güntzstraße 1, 01069 Dresden**

Nearest stop: Straßburgen Platz

***Arriving from HTW***

Tram: From *Hauptbahnhof*, take tram line 10 towards *Striesen*. Get off at *Straßburger Platz*. The building is a 3-minute walk away.

# COVID Test

Upon arrival at the summer school event sites, the team will be waiting for you every day. If you do not have a valid vaccination certificate (digital or analog) you will receive a test from the team so that you can test yourself.

Please ask the assistance team if you need help with the self-test.

You can obtain a daily COVID certificate also from any pharmacy or COVID Center in Dresden.

# Program: Education and Technology in Hybrid Formats and Worlds 2021

| CET | Sunday, 03.10.2021 | CET | Monday, 04.10.2021 | CET | Tuesday, 05.10.2021 | CET | Wednesday, 06.10.2021 | CET | Thursday, 07.10.2021 | CET | Friday, 08.10.2021 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 8:15 am | | 8:15 am | HTW - Room S409 | 8:15 am | HTW - Room S409 | 8:15 am | HTW - Room S409 | 8:15 am | HTW - Room S409 | 8:15 am | HTW - Room S409 |
| | | 8:45 am | COVID CHECK-IN | 8:45 am | COVID CHECK-IN | 8:45 am | COVID CHECK-IN | 8:45 am | COVID CHECK-IN | 8:45 am | COVID CHECK-IN |
| | | 8:45 am | HTW - Room S409<br>Welcome Address:<br>Prof. Dr. Thomas Köhler<br>"Digital Innovation in Research and Participation" | 8:45 am | HTW - Room S409<br>Workshop 2:Roundtable:<br>Prof. Dr. Thomas Köhler, Prof. Dr.Eric Schoop, Prof. Dr. Daniel Apollon:<br>"Social Learning Analytics, Deep Learning,<br>Tech4Comp" | 8:45 am | HTW - Room S409<br>Keynote 4:<br>Prof. Dr. Omid Fatemi<br>"E-Learning, the enabler for the new paradigm for future education"<br>[MS TEAMS/ZOOM] | 8:45 am | HTW - Room S409<br>GeNeMe Conference Keynote | | |
| | | 10:15 am | HTW - Room S410<br>Coffee/Tea/Water Break | | | 10:15 am | HTW - Room S410<br>Coffee/Tea/Water Break | individual | HTW - Room S410<br>Coffee/Tea/Water Break | 10:10 am | HTW - Room S409 \| HTW - RoomS410 \| FH Raum 3 \| Online<br>Presentation of Virtual Research Posters Session 1 in GENEME - Divided in groups |
| | | 10:45 am | HTW - Room S409<br>Workshop 1:<br>Prof. Dr. Bruri Triyono and Prof. Mario Gandra<br>"Educational adaptations in schools and universities duringCOVID-19 pandemic" | 10:45 am | HTW - Room S410<br>Coffee/Tea/Water Break | 10:45 am | HTW - Room S409<br>Academic Roundtable 1:<br>"PhD Careers in a Hybrid World" | | GeNeMe Conference – individual panels | 11:10 am | HTW - Room S410<br>Coffee/Tea/Water Break |
| | Arrival | 12:45 pm | HTW - Room S410<br>Lunch | 11:15 am | HTW - Room S409<br>Keynote 3:<br>Prof. Dr. Bruri Triyono<br>"The Implementation of Project Based Learning for Practical Subject in Pandemic C19 using online learning" | 12:15 pm | HTW - Room S410<br>Lunch | 12:45 pm | HTW - Room S410<br>Lunch: Please consider GENEME's schedule. Lunch will be available until 2:45 pm | 12:10 pm | HTW - Room S409 \| HTW - RoomS410 \| FH Raum 3 \| Online<br>Presentation of Virtual Research Posters Session 2 in GENEME -Divided in group |
| | | 2:45 pm | HTW - Room S409<br>Keynote 1:<br>Prof. Dr. Daniel Apollon<br>"Deep Learning - Prospectives for Educational Research"[MS TEAMS/ZOOM] | 12:45 pm | HTW - Room S410<br>Lunch | 2:15pm | Poster Presentation<br>Mentoring Sessions 1<br>Maud Ceuterick's Group (HTWS409)<br>Myriam Coco's Group (HTW S410)<br>Thomas Schöftner's Group (HTW Foyer)<br>Poster Presentation<br>Technical Support 1 - Support Team<br>Mario Gandra's GroupPetra Traxler's Group | 02:45 pm | | 1:40 pm | Group from FH comes back |
| | | 4:15 pm | HTW - Room S410<br>Coffee/Tea/Water Break | 2:45 pm | HTW - Room S409<br>Workshop 3:<br>Prof. Omid Fatemi<br>"FlippedClassroom Design" | 4:15 pm | HTW - Room S410<br>Coffee/Tea/Water Break | 1:30 pm | HTW - Room S410<br>GeNeMe Conference – individual panels | 2:10 pm | HTW - Room S410<br>Lunch |
| 5:15 pm | | 4:45 pm | HTW - Room S409<br>Keynote 2:<br>Daniel Jung, M.A.<br>"(Paren)Theses in Hybrid Academia: Ontological, Practical and Ethical Issues in Contemporary Scientific Referencing" | 4:30 pm<br>5:00 pm | HTW - Room S410<br>Coffee/Tea/Water Break | 4:45 pm | HTW - Room S409<br>Poster Presentation<br>Mentoring Sessions 2<br>Mario Gandra's Group (HTW S409)Petra Traxler's Group (HTW S410)<br>Poster Presentation<br>Technical Support 2 - Support Team<br>Maud Ceuterick's Group<br>Myriam Coco's Group Thomas Schöftner's Group | 4:10 pm<br>individual | HTW - Room S410<br>Coffee/Tea/Water Break | 4:10 pm | HTW - Room S409<br>Wrap-Up Summer School |
| 5:15 pm<br>6:00 pm | COVID CHECK-IN | 6:15 pm | HTW - Room S410<br>Coffee/Tea/Water Break | 5:00 pm | [Place:]Postplatz Dresden<br>Stadtrundfahrt Dresden | | | 5:55 pm | GeNeMe Conference – individual panels | 5:30 pm | |
| 6:00 pm<br>8:00 pm | Hörsaalzentrum TUD - Room 208<br>Performing Hybridity – live/hybrid concert with Thabet Azzawi | 6:45 pm<br>8:15 pm | HTW - Room S409<br>Hybrid Escape Game Experience<br>„Hong Kong the Night Before“ | 7:00 pm<br>7:30 pm<br>open | HTW - Room S410<br>Coffee/Tea/Water Break<br>[Location:] Augustiner Brauhausan der Frauenkirche<br>Group Meeting at Augustiner | 6:45 pm<br>7:15 pm<br>7:15 pm<br>open | HTW - Room S410<br>Coffee/Tea/Water Break<br>TBA | | | | |

**Opening Day** -Hörsaalzentrum TUD – Room 208: **Bergstraße 64, 01069 Dresden**

Summer School (Keynotes, Workshops, Mentoring Sessions): HTW Dresden (Hochschule für Technik und Wirtschaft Dresden ) Building S Room S409: **Friedrich-List-Platz 1, 01069 Dresden**

# Welcome Address:

## Digital Innovation in Research and Participation

## Prof. Dr. Thomas Köhler

TU Dresden has launched the CODIP – Center for Open Digital Innovation and Participation as follower of the TUD Media Centre https://lnkd.in/eVuF-y35

The Center conducts research on digital media as tools for teaching, learning, research and other contexts of work, but also in everyday social life. CODIP focuses on the consequences of digitization for innovation processes, the testing of digital research infrastructures and the needs-based design of digital tools. At the same time, CODIP trains the next generation of academics and is the mediator of research results relating to digital transformation and barrier-free participation using methods from Open / Citizen Science for TUD and research partners worldwide.

During the session the centers profile will be presented as the host of this summer school but as well a research facility which develops new methodical approaches toward open science.

# Keynotes and Workshops

**(in order of presentation in program)**

## Workshop 1: Educational adaptations in schools and universities during COVID-19 pandemic

**Prof. Dr. Bruri Triyono and Prof. Mario Gandra**

The COVID-19 pandemic has imposed changes on most, if not all, of people's activities, from work to tourism. Education is no exception, and institutions had to adapt to the sanitary restrictions. Curricular adjustment to distance learning became a major priority during this period. Emergency regulations adapting teaching and learning structure determined the course of action at schools and universities. Mediators of this roundtable will present the cases of their institutions (Federal University of Rio de Janeiro and Negeri Yogyakarta University), analyzing with participants the actions taken (pros, cons, and suitability to context). The following discussion will focus on the strategies used and how they compare to other cases and contexts. Also, data about the scientific works on education published during the COVID-19 pandemic will be presented and analyzed. Which aspects received more attention? Where do these studies lead us to? Considering the actions that were taken and the research that was done, how could this impact the future of education in higher education institutions?

## Keynote 1: Deep Learning – Prospectives for Educational Research
## Prof. Dr. Daniel Apollon

Deep Learning (DL) is a novel approach in Artificial Intelligence to learn from large data sets and extract reusable knowledge. At the heart of DL resides a notion of « learning » that has deep ties to general learning theories in education and adaptative behaviour in biology. DL algorithms are currently implemented in various practical and aesthetic areas, e.g. autopilots, facial recognition, tumor detection, poetry generators, fake videos, and are also gaining popularity large scale survey methods, e.g., sentiment analysis, feature extraction. However, beyond immediate benefits of DL, to quote Margareth Boden: « I'm interested in how computational technology can help us understand human creativity. Many examples of creativity involve learning and exploring in a hierarchical style. Neural and multilayer network systems can help us construct different frameworks to better understand those hierarchies, but there's much more to learn and discover. If you have a computer that comes up with random combinations of musical notes, most of that stuff will be utterly uninteresting rubbish, but some of it will not be. A human being who has sufficient insight and time could well pick up an idea or two. A gifted artist, on the other hand, might hear the same random compilation and come away with a completely novel idea, one that sparks a totally new form of composition. That's a very different type of creativity. About 95% of what professional artists and scientists do is either exploratory or combinational, and the other 5% is transformational creativity. At the moment, we don't really have a good understanding of these processes. That's where AI has the potential to play a powerful role. »

I will outline in this presentation how DL approaches may combine analysis, discovery, and creative transformation of various informational materials, and stimulate new approaches in educational research. As Deep Learning and related approaches build heavily on multidisciplinary contributions and as DL equally currently contributes to many disciplines, I will also deal with some challenges that have emerged in the wake of this ongoing scientific turbulence.

Cited work: Boden, Margaret A, Artificial Intelligence: A Very Short Introduction. Oxford University Press, Oxford, 2018.'

**Recommended required readings:** Boden, Margaret A, Artificial Intelligence: A Very Short Introduction. Oxford University Press, Oxford, 2018. (Available at a very cheap price at Amazon Kindle)

**Other remarks, comments, or concerns that I/we want to share:** My last Master/PhD seminar Spring 2021: DIKULT304 Spring 2021

## Keynote 2: Theses in Hybrid Academia Ontological, Practical and Ethical Issues in Contemporary Scientific Referencing
## Dr. Daniel Jung

Questions addressed (and partly answered): What does hybrid academia mean? Has academia experienced a challenge from inside (paradigms) or outside (internet, corona)? How has it reacted to it: by evolving, merging, or maintaining the status quo? Is the challenge really a parenthesis, or footnote in academia's history?

What are (types of) references in academic texts (theses)? Are they always expendable? Should they be expanded? What has changed with a changed format and distribution (production, publishing, reception) of theses? Are there different categories of referential parentheses? Are footnotes challenged as a referential model and genre characteristic? Can hyperlinks be seen as a metaphorical model of the nature of academia (as a community and a practice)? How do or can textual introductions (sections on "State of research", "Literature review") tie into a digitized academic texture of texts (web of science)?

Are doctoral students admonished to use certain referential strategies, features or formats in their texts (article, thesis)? Why, and does that depend on the distribution form? Who promotes the change, and who maintains the status quo? Who benefits from either?

**The practical work** after the talk consists in sharing five printed pages of your own text production, look at the types of parentheses, their nature and impact, and be challenged to justify them.

**Other remarks, comments, or concerns that I/we want to share**: Please bring a recent physical paper copy of your thesis text (5 pages) where you use references in parentheses.

## Workshop 2: Social Learning Analytics and Deep Learning
## Prof. Dr. Thomas Köhler, Prof. Dr. Eric Schoop, and Prof. Dr. Daniel Apollon

Digitization goes along with the change from analogue media formats and communications to (permanent) digital mediatization. Particularly this leads to changing roles and representation of humans involved in education but as well to new research concepts towards databased representations of all actors. The round table will discuss different approaches like AI based mentoring, social learning analytics, deep learning and others in order to elaborate cutting edge ideas of technologies in education.

## Keynote 3: The Implementation of Project Based Learning in Practical Courses During the Pandemic-C19 using Online Learning.

**Prof. Dr. Bruri Triyono**

Learning in universities during the pandemic-C19 must continue by adjusting the health protocols and rules that apply in each region. Face-to-face learning is still prohibited and replaced by online learning using various platforms offered by application makers. The student-center learning is used to realize 21st century skills. Project-Based Learning (PjBL) is used to fulfil the experience of learning to work in team work, think creatively, solve problems, and manage information. The fulfilment of learning experiences in the cognitive and affective domains is still possible, but what about the fulfilment of psychomotor domain in learning experiences that require real activities or face to face, this will be difficult to implement with online learning.

The application of PjBL in the Engineering Drawing course is carried out by giving complex assignments, based on challenging questions or problems, directed at solving problems through investigative activities, group discussions, decision making, design making, realization of results, reporting and presentations. Assessment of student work is carried out with authentic assessment through performance assessment during PjBL in mid and end time activities.

The results of online learning activities are obtained through the application of PjBL in the Engineering Drawing course. The strategy of dividing the number of session time in one semester into three parts is implemented to get closer to the actual practical activities. The first part is online lectures which contain basic material or essential skill in Engineering Drawing. The second part provides guided assignments with a problem-based learning approach and is closely related to the order of the subject matter of Engineering Drawing skills. This task is carried out in their respective homes with the role of the lecturer as an active facilitator. In the third part, PjBL tasks are given with a main question as an umbrella for PjBL which will be done by each group of students. During the PjBL, the role of lecturer as a passive facilitator and play more of an expert role in completing student projects. The assessment stage of student work is carried out with group assessments and individual assessments. Individual assessment is carried out by revealing the process skills of making part of the project through student presentations from group members. Although it is not known with certainty the similarity of the results of mastering student skills when compared to face-to-face learning, but through PjBL, group and individual activities can take place and approach face to face learning activities.

**Key words:** Project based learning, online learning, practical courses

## Workshop 3: Flipped Classroom Design

### Prof. Omid Fatemi

Flipped classroom is increasingly being used by instructors. The idea is to flip the traditional classes. In those classes the instructor teaches the course in the class. At that time, higher level of learning is not achieved and therefore assignments and projects are given to students. It means at the time achieving higher level on learning is expected the instructor is not present.

The idea is to flip this. In the absence of the instructor the learners watch the instruction by the instructor. Then in the time of class and in the presence of the instructor discussion, analysis, solving the problems are done. It means the higher levels of learning are achieved in the presence of the instructor.

In this workshop the procedure to design, implement and perform such classes is discussed with presenting the following topics.

- Bloom taxonomy for learning objectives
- Flipped classroom introduction
- Instruction strategies
- Design and making a learning video clip
- Mayer's principles for multimedia learning
- Active learning
- Flipped classroom requirements
- Preparing the content and activities
- Performing the class

## Keynote 4. E-Learning, the enabler for the new paradigm for future education

**Prof. Omid Fatemi**

There are various talks about what would be the future of education? would it be online or face to face or blended?

In this talk, I am going to say the important thing to decide is not the delivery method but the teaching and learning method to promote deep learning. And they are achieved with the help of pedagogy, technology and digital natures of future learners.

These scenarios are compared:

1. a) Individual learning – learner by oneself b) Social learning – learning in group
2. a) Passive learning b) Active learning
3. a) Better instructional design b) Using modern technology
4. a) A very well single established method for all students b) A variety of methods for students
5. a) 10-minute video clip for one topic (microlearning) b) One hour lecture session
6. a) Linear course b) Non-linear course
7. a) Instructor-led training b) Learner-centered education

# Abstracts of PhD Students

## Al-Faraby National University - Kazakstan

### The effectiveness of using e-learning in teaching English as a foreign language

**Amina Kurbanova**

The research work deals with the problem of the development of e-learning in educational practice. The authors justify the relevance of the transition of the educational organization to a remote teaching format due to pandemic at the beginning of its outbreak. The merits and the shortcomings of e-learning in the Foreign Language curriculum are revealed. The authors confirm the need of using cloud technologies in the educational process on the example of practical experience in teaching a foreign language in an outbreak COVID-19 pandemics.

**Keywords**: e-learning, foreign language, distance learning.

# Shiraz University

## The relationship between the Fourth Industrial Revolution and Higher Education

**Mosayeb Bameri**

In the last few years, I have become interested in research in higher education, and due to this interest, I studied for a master's degree in educational administration, and now I am studying as a doctoral student in this field. One of the concepts I have become interested in researching and studying is "The relationship between the Fourth Industrial Revolution and Higher Education". Since the concept of " Industry 4.0" has become popular in recent years, and this concept is evolving in various fields. In the digital age, information and communication technology in higher education helps teachers in the teaching and learning process and helps them in playing their role in creating dynamic learning environments. Among other developments, fourth industrial technologies have an increasing impact on society, especially higher education. Universities have a fundamental role to play in ensuring knowledge and the development of competencies in the current fourth industrial revolution, known as Industry 4.0.

To align with the fourth industrial revolution, a number of initiatives are underway around the world in response to such a transformation, particularly in terms of the development of engineering education. One of the challenges that companies must overcome in order to properly implement the fourth industrial revolution is the issue of student empowerment. Universities do their part by offering programs aimed at educating people on fourth industrial revolution issues. On the other hand, companies also offer training programs for their workers to adapt to new demands. On the other hand, there is extensive literature reviewing the competencies required in the fourth industrial revolution. Common issues include the ability to use and interact with fourth industrial revolution technologies, data analysis, technical knowledge, and the need for personal skills. However, there is no consensus on the competencies required and the model associated with empowering Ph.D. students to adapt to the fourth industrial revolution. Accordingly, in my doctoral dissertation, I seek to answer the fundamental question: "What is the model for empowering engineering doctoral students to adapt to the developments of the fourth industrial revolution?"

**Keywords:** Higher education, technology, fourth industrial revolution, teaching methods, engineering doctoral students.

## Exploring academics' perspectives on intercultural competencies development for facilitating students' virtual mobility

**Ghasem Salimi* , Mahboobe Mehrvarz, Mehdi Mohammadi**

Today, with the speed of COVID-19 and virtualization, universities face many demands and challenges (Bevins et al., 2020). Internationalization is one of the significant challenges that higher education should consider as an educational initiative and strategy (Roga et al., 2015; Bradford, 2015). One of the most important indicators of higher education's internationalization is students' mobility (Beech, 2018). Virtual mobility programs organize online learning experiences for students who cannot take advantage of physical mobility opportunities (Wihlborg et al., 2018; Otto, 2018). The cultural competence of the university is one of the most important and effective factors in facilitating the process of virtual mobility (Opp & Gosetti, 2014).

Given the central role of cultural competencies in facilitating virtual mobility, this study aimed to explore Iranian academics' perspectives on the development of cultural and intercultural competencies and their impact on the virtual mobility of international students. To this aim, a qualitative approach and a phenomenological research method were used. The participants included 27 experts in the area of internationalization from the top five Iranian comprehensive and public universities. Five main components were identified as effective strategies in developing intercultural competencies through virtual mobility. These components included promoting and developing intercultural literacy, creating meaningful learning experiences, facilitating human resource empowerment, improving virtual infrastructure, and optimizing the use of social networks. The results of this study showed that universities should pay more attention to the above components to facilitate the virtual mobility of students.

### References

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**Keywords:** Cultural competencies, virtual mobility of students, internationalization, higher education

## Safety Education for Engineering Graduates

**Reyhane Mokhtarnamea**

**(Under supervision of Prof. Ali Akbar Safavi of Shiraz Univ. and Prof. Leon Urbas of TU Dresden)**

As systems are getting more complex in modern societies, safety management concepts are becoming more and more a critical issue. Nevertheless, this has not been properly addressed in all engineering disciplines at universities. In fact, there are some new trends facing our current and future working environments which seriously affect the safety of our society. First, the systems around us become more complex and complicated decision- making algorithms are active. Second, various new technological tools are being used (i.e., including various sensors, actuators, etc.) where their reliabilities could highly affect the outcomes. Third, more national and international collaborations of skilled workers are involved in decision makings while their different disciplines, different cultures, and different languages could highly affect such decision makings. On the other hand, a large amount of data has been collected which could help analyzing the normal and abnormal situations to avoid catastrophes. Despite all these facts, not an appropriate safety curriculum is seen to fit all engineering disciplines to improve the skills of graduate on this aspect. We believe all discipline need to consider such a course for all. This course could cover: basic safety concepts, historical data of past major accidents and their root causes, cultural aspects, applicable codes and standards, simulation tools, automated analysis, and some case study related to any particular discipline. All this could also come in the form of a safety education platform. To show the applicability of the proposed safety education platform, a framework for such a platform together with one example will be presented.

**Keywords:** Safety Management, Future Skills, Multi-Disciplinary Teams, Safety Education, Complex systems

## University of Bergen

### Dynamic development of cultural and creative industries in Africa: a comparative study between Cameroon and Nigeria.

**Ngaska Bessolo Laurentine Nadége**

The objective of this work is to carry out a comparative study of the Cameroonian and Nigerian cultural sectors, to analyze the strength of Nigerian cultural policies in order to suggest to Cameroon those that best suit its context and diversity, to make its culture an essential lever of its economic development. This research is inspired in a global context where culture is increasingly emphasized, analyzed from an economic point of view and considered as a major lever for the development of countries. At this stage of the research, two steps have already been completed: firstly, the inventory of the cultural and heritage richness of certain socio-cultures of the countries which are the subject of our study, namely the Ekang in Cameroon; the Ibos and Yoruba in Nigeria. Secondly, the establishment of the types of cultural industries that can be found on both sides of the countries. However, several stages remain in the work plan: firstly, an overview of Cameroonian and Nigerian cultural and creative industries;secondly, the analysis of cultural policies in the two countries; thirdly, the analysis of the economic contribution of cultural and creative industries in the two countries, taking Nigeria asa model in its management of cultural enterprises; finally, the contribution of the cultural industries in the promotion of interculturality and social cohesion between local cultures, African cultures, and between cultures of the world. Documentary research is privileged in thiswork within the framework of the research methodology and the theory that backs up this is theeconomics of culture by David Throsby[1] taken up by Benhamou Françoise[2]. This critical approach covers an expanded field, from the economy of singular cultural goods (live performance, fine arts, heritage) to cultural industries (books, records, cinema, video games) and the media (press, radio, television). It is about analyzing the economic models as deployedin the physical world and in the digital world. Considering the requirements of scientific research and what remains to be done, we cannot yet speak of results, while waiting to make considerable progress in the analysis. In a nutshell, this work, once completed, will help in theprogress of science in the sense that it will make concrete proposals for a good capitalization ofculture in underdeveloped or developing countries. This is indeed a project and requires field research; beyond the theoretical aspect.

**Keywords:** economic development, cultural industries, creative industries, Africa, comparative study, Cameroon, Nigeria.

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**Education and Technology in Hybrid Formats and Worlds**
**Steve Edgar Feze Feugang**

Machine translation has always drawn increasing interests among linguists and computer scientists alike. Many approaches and techniques have been developed to improve the performance of this digital tool. We have thus moved from rule-based techniques to techniques based on neural networks which, with the help of the computing power of computers, now present acceptable results. Despite these technological advances, the quality of translations from computer systems is not always suitable. Machine translations still encounters problems such as non-linguistic and linguistic problems. This research relies on the linguistic problems of machine translation. Its specific interest is the management of syntactic dependencies which play an important role in the cohesion and consistency of translated sentences. This work is based on the architectures of encoder-decoder neural networks which are the state of art in the field of machine translation. We aim to improve the quality of machine translation by integrating a mechanism of extracting linguistic informations such as parts of speech, syntactic dependencies and morphosyntactic features in order to better circumscribe and contextualize the vector representations of the source words. To conduct this research, we rely on sequence- to-sequence architectures of recurrent neural networks (RNNs) with attention mechanism and Transformers that we use as the baseline of our experimentation. From this classical architecture, the idea is to develop a neural model which is able to extract dense vector representations of linguistic informations from sentences to translate and to concatenate these vectors with the words embedding. Then the result of this concatenation will be used as input data to neural translation system. Afterwards, using the Blue metrics, we evaluate and compare the performance between classic encoder-decoder architectures and models enriched by syntactic information. Several works which have developed similar prototypes show the added value of our approach. However, these models rely on parsers that require an important syntax tree corpora (Treebank) for its training. Moreover, these models require a lot of training time, therefore making the system heavier. Unlike these works, we use the Spacy library which allows us to automatically retrieve this type of informations and guarantees the standardization of syntactic annotations, because it is based on Universal dependancies. After seeing a classic model set up, the current stage of our work is the implementation of the enriched model.

**Keywords:** Neural machine translation, neural network, syntactic dependencies, Part of speech, information retrieval, word embedding.

**Hybrid Based Learning in Online Queer Communities**

**Cecilie Klingenberg**

My master project is creating and contextualizing a piece of electronic literature that focuses on queer identity online, while researching this I keep coming back to the concept of virtual embodiment and performance. Platforms such as TikTok and Twitter where the space is designed to share yourself both through ideas and identity, queer communities are using platform specific language to find each other, and more importantly they're engaging in a information exchange whilst solidifying culture markers and validating each others existence.

LGBTQ communities have historically existed separated from the general publish, variating from hidden to simply marking their communities as queer but open to others, this depends on geography and time periods. Now in the 21st century while there is a wider accept surrounding being queer, gender and sexuality minorities are still subject to harm internationally. Online spaces are both safe spaces where queer people can unmask, and they are educational platforms to learn the relevant history as well as inform other's about policy changes that affect lives from day to day.

In this sense the online community mimic historical queer spaces and practises from Drag Balls, to handerchief coding - the idea of performance and code markers to signal how they identify seems a constant. This interactive performativity allows people who are in places where their sexuality is illegal, or where there simply are no local communities, to group together.

Queer people existing in online communities are relevant in three different ways for this presentation. First of all, the idea of performativity and embodiment allows us to observe, and partake, in the culture of unmasking and self-presentation in spaces where there is little sense of harm or serious backlash -- because there is no physical venue, the sense of immediate retribution or admonishment from those who wish them harm. While this Leads to

stereotypes of how certain groups of queer people dress and adorn themselves to express and play with their identity, it also leads to code markers being developed and used to signal

with intent rather than as a ambient identity makeup or mask. Most importantly, when looking at TikTok as the main hub the obstacles for creators on this platform include a constant tension between expressing themselves to a degree they are satisfied with, while dodging the platform's restrictions. On TikTok this has resulted in a change in user language, euphemisms and emojis are used to convey an intended meaning behind what they're saying. These language changes are mostly completely comprehensible for a human moderator with a basic training in how to spot these dodges, but because TikTok seems to work on a two prong algorithm marked, and human confirmation, this seems to work to an extent. Although there

are plenty of claims from online creators within queer communities saying they are being shadowbanned, as in algorithmically surpressed to limit views and reach to their audience, and downright banned from posting content simply for being visibly queer and talking about it.

This concludes to a set of behaviour that are familiar to queer history, but this time we're navigating virtual selves, connection to community and a system of knowledge hidden in the technology that queer people are both embracing whilst being in a constant tension with.

**Keywords**: Queer theory, practice theory, social media, hybrid learning, algorithm, linguistics

# University of Pattimura Ambon

## Phenomenon Of Cursing in Tiktok Social Media – A Shift In Meaning In Society

**Wilma Akihary**

**Co Author: Rita Fransina Maruanaya (Technische Universität Dresden)**

For the people of Indonesia, Cursing is a taboo expression. Taboo is a prohibition in society against behavior that is considered dangerous and can make them ashamed and humiliated. The emergence of these taboo words is due to 3 things, namely related to something scary, that make people feeling uncomfortable and something that is not polite and inappropriate. If this is done in a public space, it is generally unacceptable in society. However, this was responded differently when the cursing appeared on TikTok social media. This can be seen from the number of people who liked these cursing videos and duplicated the sound recordings of the videos. This phenomenon raises the question of whether cursing is a taboo for people living in today's digital era and whether there are differences in perceptions about cursing in TikTok across generations (Baby Boomer generations, X, Y and Z).

Based on the above background, this research is focused on finding out whether cursing is still considered taboo and how cross-generational perceptions in Maluku province, especially in Ambon city, towards the cursing. The approach in this research is descriptive qualitative using purposive sampling technique. The sample of this research consists 100 respondents from across generations. Data were collected from February to April 2021 using a questionnaire (open-closed combination) to determine perceptions and confirmed using in-depth interviews. In addition, participatory observations were also made when respondents watched the videos shown. This triangulation method is used to test the validity of the data. Furthermore, the data were analyzed using the Miles and Huberman model, which began by reducing the data that had been collected, presenting the data and then drawing conclusions.

The results of the study showed, that the perception of cursing as something taboo is still believed by the Baby Boomer generation and generation X. But on the contrary, for generations Y and Z it is not something that is taboo; The BB generation's perception of cursing in TikTok social media does not shift in meaning. On the other hand, a shift in meaning occurs in generations Y and Z. In generation X, there is an inconsistency of perception of cursing.

**Keywords:** Cursing, Social Media, TikTok, Society, Generation

# University of Strasbourg

## Edmill, an Empirical Learning Design Method Applied to High School.

**Carlos Bohorquez**

Recent innovations on learning technologies have increased the number of solutions climbing to help teachers and trainers on their design activity. However, this expansion of possibilities has been an issue, because this diversity does not often correspond to their actual needs. We have created an empirical design method, integrated in a LMS platform, where trainers and teachers can find in a single environment with all those possibilities of working on the design, assessment and broadcast of a training class/program.

Our model recommends a specific structure where trainers and designers should follow 3 main stages: first, a diagnostic assessment to measure the level of knowledge of learners before the training. Second, the learning activities operating the main concepts about the development of a learning content. This stage also includes the formative and summative evaluation. Finally, the third stage proposes an assessment protocol where every learner is evaluated in a period of time (according to the learning objectives) after the training ended.

For instance, we have organized an experiment within 2 classrooms (high school) for a Biology class (Zoosemiotics). Each classroom was divided in 2 groups: one group was following the recommendations of our method, while the other group was following the conventional path (teacher's proposal). We hypothesize that this design method contributes to the improvement of learning design skills guiding teachers and trainers into a better structure of their learning content. Besides, we consider that this method contributes as well on the acquisition of better understanding of the learning activities, due to the fact that the learning content is better explained. Both group of participants, teachers and learners have changed the perspective on using a LMS where a single environment is used to create, share and evaluate a training. Some perspectives on the content have been discussed and more adequations are in order on future observations.

**Keywords:** Learning models, Learning design, Guidance, Platforms, Evaluation, Digital environment.

**Evaluation of mobile Serious Game learning experience from different perspectives**

**Ying-Dong Liu**

The most important principle of 21st-century learning is to put the learner at the center of the design of learning environments (OCDE, 2010). From this perspective, the learning experience is important to validate the design of learning environments. Moreover, many articles discuss the learning experience, but very little research has been done to define it. Therefore, based on contemporary learning theories, and the experiential learning theory proposed by Kolb (1984), which emphasizes learning with concrete experiences, we define learning experience and its characteristics in our research. The learning experience consists of all the feelings that the learner can experience during the learning process. It includes his experiences/knowledge/prior skills and all the aspects of the interaction with his learning environment: the resources, the system, the design.

Furthermore, Serious Game (SG), which allows playing while learning, appears to optimize the learning experience. Although much research has been carried out on user experience (UX), few studies focus on the learning experience of the Serious Game on mobile devices. Moreover, the studies conducted do not cover all aspects useful for evaluating learning experience sufficiently. As a result, designers and teachers will find it difficult to evaluate the quality of students' learning experience. This research aims to find the essential criteria to evaluate the learning experience of SGs on mobile devices.

To this end, we first identify relative criteria from the literature review. Then, we interview 15 people from different game design areas to select essential evaluation criteria. Based on the grounded theory, the preliminary results of the interviews show that people from the same areas tend to choose criteria close to their field. For example, lecturers, professors, and educational engineers pay more attention to learning aspects. At the same time, UX designers focus more on the needs of the players and the usability of the game. Finally, based on the criteria identified in the interviews, a questionnaire is developed. Future work will engage a group of students using a mobile game.

Based on previous research, this article defines the learning experience and its characteristics. Then, a questionnaire of the learning experience is developed, which could help facilitate the design of SGs and related games and help educators choose a Serious Game that fits the needs of students for teaching.

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**Keywords:** learning experience, Serious Games, evaluation, mobile learning, game design.

**The learning of the French language by migrants with the integration of ICT**
**Chayma Yagoubi**

The arrival of migrants naturally raises the question of their integration into the society of the host country. The mastery of the language of the host country remains the major point to be able to integrate socially and reach the main objective of their migration. The level of knowledge of the language can be an obstacle at the time of the cultural and professional insertion in a new society. Since the year 2000, the issue of linguistic integration of migrants has become a real public policy issue, mainly in Western European countries (Extramiana & Van Avermaet, 2010). One of the main reasons for the implementation of these policies is that the public authorities, faced with the damage of the economic crisis and the increased difficulty of integrating migrants into the labour market, understand the decisive importance of language proficiency in the integration process: "language is an identity marker that host countries ask migrants to share and accept" (Adami, 2012). Illiteracy and illiteracy in developed societies are considered to be social lesions because the lack of mastery or insufficient mastery of the written word represents a real social handicap in these hyper-scriptualized societies (Adami, 2008).

The contributions of digital technologies in the field of foreign language teaching can no longer be overlooked. ICTs have a dual role: the first in the circulation of information and the dissemination of knowledge, and the second in the provision of digital tools at the service of all (Marquet, 2015). This research project is based on the idea that the integration of ICTs in a French training program for illiterate migrants is likely to achieve the expected objectives in terms of knowledge and skill acquisition. Thanks to online videos and pictograms, migrants who do not know the language of their host country can better learn the basics. The individualized exercises thus promote the cultural integration of migrants. Culture generates social links for people arriving in a new territory.

For the moment, we identify two important axes that will constitute the theoretical framework: "illiterate" migrants and the learning of the language of the host country and the pedagogical use of computer tools in the field of teaching French to adults. Therefore, my first questioning is the following: "How to improve the courses, in face-to-face and or at a distance, with digital tools, in the field of teaching French to migrants in order to favour their integration in the society? That said, the linguistic integration of migrants is one of the major difficulties of European states in the context of the migration crisis of recent years. The aim is to study the basic notions and concepts such as the integration of migrants in the host society, the learning of a language, illiteracy, digital technologies and the learning of foreign languages, the motivation of the learning of the language of the host country by migrants by approaching the different organizations of reception of migrants such as the French Office of Immigration and Integration, the Centres of Reception of Asylum Seekers and their support to the learning of French to adults.

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**Keywords:** New language learning- foreign language- illiteracy- migrants- ICT - linguistic integration

**Observing instrumented activity from the interface of an adaptable HIE**
**Arnaud Zeller**

Our research, which aims at observing instrumented activity from the interface of an adaptable HIE, focuses first on the representations of the utility or values attributed by the subjects to the learner's customizable learning environment. It then focuses at the artefact level on the functionalities mobilised or not from the interface in learning situations. Finally, at the level of action patterns, it studies the recurrences and breaks in the individual ways of carrying out an activity from the graphical interface of the digital learning environment due to instrumental conflicts.

Among the challenges facing students, the appropriation of new learning environments represents a major issue in the face of the offer of digital terminals for access to knowledge, computers, tablets, laptops, which have retained very different metaphorical environments of representation of the activity. The appropriation of these instruments dedicated to finalized activities, possible with graphical user interfaces (GUI), represents a thematic field that concentrates a significant amount of research, and more recently, researchers in Science of Education who can no longer "ignore the problems of HMI" (Daubias, 2003). The results have made it possible to produce models for analysing and designing resources for teachers (Georget, 2009), but the question of taking into account, the needs of learners in relation to technological constraints and institutional requirements, still remains.

In this respect, the instrumental genesis (Rabardel, 1995) carried out by the learners during the processes of instrumentalisation and instrumentation of the artefacts, which puts the learner in the situation of having to manage instrumental conflicts (Marquet, 2005) between the didactic, the pedagogical and the technical artefacts, offers a favourable setting for approaching these conflicts from the graphical interface of the digital environment. We observe the effect of these instrumental conflicts on the course of action (Linard, 2001) with the help of an ad hoc developed software with an adaptable graphical interface and a learning analytics module.

The methodology used is based, on the one hand, on the use of questionnaires with reference on the User Experience Questionnaire (UEQ) and to the UTAUT model (Venkatesh, 2003) of technology acceptance and, on the other hand, on the analysis of learning traces in a quantitative approach, made possible with the transparent data collection module of the software, during its use.

Our results allow us to reposition the graphical interface of a learning environment at the heart of the device. Although it retains its interactional properties and purposes aiming at a human-machine interaction, it becomes a conceptual field equipped with a system of instruments where two levels of instrumental genesis take place, generating on the one hand, instrumental conflicts staged from the computer screen and allowing on the other hand, to manage these conflicts by instrumental adjustment and evaluation of the differential between the expected effect and the obtained effect (Linard, 2001) in the realization of the activity.

We are currently in the final phase of the project and are preparing for the defence of this thesis scheduled for 26 November 2021 at the University of Strasbourg.

**Keywords:** Instrumental conflict; Genesis instrumental; Graphical User interface; Interactive learning environment ; theories of activity ; theories of action ; Learning Analytics

# Yogyakarta University

## The Benefits Empowering Communities in TVET During Pandemic Covid-19 in Indonesia

**Septiono Eko Bawono**

The Indonesian government realizes that vocational education has made a major contribution as a driver of economic and social change since 30 years ago. Like the implementation of the 'home international' model in China, the 'link and match' policy in Indonesia combines vocational education and training systems with the needs of Small and Medium Enterprises (SMEs). The implementation of this 'link and match' policy makes vocational education in Indonesia able to produce skilled workers according to industry needs. Especially in the conditions of the Covid-19 pandemic, since 2020 vocational education has played a very important role in providing vocationalization and training systems in accordance with the principles of handling the pandemic. Even the proper digitization of training in formal, non-formal and informal vocationalization has resulted in successful SMEs. Based on observations, the implementation of vocational education and informal training systems is able to bridge the gap of expertise generated with the skills needs of the industries. Even the implementation of vocational education has provided profits and benefits to SMEs.

This study aims to investigate the implementation of informal vocational education in small and medium enterprises in Indonesia. China has set a good example with the implementation of 'home international' between Chinese SMEs and Germany industries. Meanwhile, Indonesia has implemented a 'link and match' policy that encourages the growth of the industries. Investigations were carried out on SMEs that had carried out training in line with the 'link and match' policy. This research was conducted using structured interviews with SMEs in Indonesia. The interview emphasized on the philosophy, theory, policy and vocational education program implemented by SMEs. Because the context of TVET can be evaluated at the input, process and output stages, the success of the implementation of vocationalization in SMEs can be measured by comparing the input and output achievements of SMEs.

The results of this study indicate that the success of informal vocational education on SMEs in Indonesia is supported by several aspects, including: the training system, the labour market and social conditions. Although the implementation of vocational education in Indonesia has experienced the dynamics of policy ups and downs. Recent policies have led to the integration of the implementation of vocational education and training systems with digital technology. Most of the SMEs that have integrated training systems and digital systems in business development have shown tangible results and can even gain business profits. In addition to business benefits, SMEs are able to contribute to creating jobs and to improve the community's economy, even during a pandemic Covid-19.

**Key word**: empowering communities, TVET, pandemic covid-19

## Student E-learning Readiness towards Education 4.0: Instrument Development and Validation

**Didik Hariyanto**

It is commonly known that the traditional “static” e-learning merely provides the same learning material and environment to all learners (Brusilovsky, 2000). This traditional e-learning is the replication of conventional face-to-face learning into the new form of technology-based learning. The ability of the “dynamic” e-learning has fulfilled some characteristics of Education 4.0 postulated by Fisk (2017) in which students prefer to use personalized e-learning and determine their own way and pace to learn. There are many studies conducted by researchers in connection with e-learning readiness. Nevertheless, all those studies are not considered the characteristics of learning and teaching process in Education 4.0. Accordingly, it is important to investigate the e-learning readiness among learners towards Education 4.0. This study aims to develop and validate the instrument of e- learning readiness of higher education students towards Education 4.0. The first step of this study is searching the already established instrument related to the measurement of the students’ e-learning readiness. This study also reviews some Education 4.0 related literature. The work continued by identifying the aspects that representing the characteristics of Education 4.0. Then, the process for developing the questionnaire items of each aspect identified in this study is done by considering the previous study of e-learning readiness and Education 4.0. The next step is continuing by analyzing the validity and reliability of the instrument from the data collected on the voluntary-based students’ online survey.

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**Keywords**: student readiness, e-learning readiness, education 4.0, instrument development, instrument validation.

**Project-based virtual reality learning in mechanical engineering labs: Improving 21st Century Skills**

**Rochmad Novian Inderanata**

The scientific objective of this research is to provide a learning experience using Virtual Reality Lab media to increase learning motivation, technology skills and digital literacy for Mechanical Engineering Vocational Education students. The research context is the development of learning media to train 21st century skills needed by the world of education and industry. Currently, many manufacturing industries have trained their employees to use Virtual Reality technology to reduce the risk of equipment damage and employee safety. These industries such as Google, Microsoft and NASA, besides that many have also started to be developed in Indonesia such as Loreal Company, Toyota Motor Manufacturing Indonesia and Telkom Corpu. The three companies have implemented VR training to train their employees. Loreal provides this experience to new employees and visitors to the Loreal factory. Toyota Motor Manufacturing Indonesia made a VR module related to the identification of hazards in the work area, then Telkom Corpu made VR Training for technicians in wearing personal protective equipment (PPE) and ODP installation. Even overseas companies such as KFC also provide VR training with a wider field of coverage not only for K3, but more on the whole process from inspection, rinsing, ripening, squeezing and high pressure frying. Then Walmart provided more than 1 million Oculus VR headsets to train employees with more than 45 modules and delivered a 10-15% increase in training retention. In addition, VR is also applied to mining companies such as Exxonmobile, which is intended for oil and gas operators to sharpen their instincts, reduce employee error rates, and help make instant decisions so that employees are expected to be ready to work smarter and safer. So, it is important that Mechanical Engineering Education students begin to be introduced to VR technology in the Lab. This is expected to have a positive impact on graduates when they enter the world of work to be better prepared to face technological transformation in the future. The stages of this research project are: (1) Analysis of Virtual Lab learning needs through surveys to Mechanical Engineering Vocational Education students; (2) Survey of current industrial conditions that have implemented VR; (3) Comparing Training Efficiency between VR and Non-VR Industries; (4) Development of Semester Learning Plans (RPS) for Classes that apply Virtual Reality; and

(5) Development of an assessment rubric for learning using Virtual Reality in the Lab. The research methodology used is ADDIE model research and development (Analysis, Design, Develop, Implement and Evaluate). At the analysis stage, the researcher analyzes the needs, requirements, tasks, participants current capabilities on learning the Virtual Lab of Mechanical Engineering Vocational Education. At the Design stage, researchers carry out the process of designing learning objectives, delivery formats, activities & exercises. At the develop stage, researchers carry out the process of making prototypes, developing course materials, reviews, pilot sessions. At the implementation stage, researchers implement training, tools in place, observation. At the evaluation stage, the researcher evaluates awareness, knowledge, behavior, results. The expected scientific benefits of learning efficiency using technology (time, place, cost, work process learning).

**Keywords**: Project-Based Learning, 21st century learning, virtual reality, immersive, learning experience

**Work Education Praxis With A Vision Of Democratic Education In The Fourth Technology Revolution: A Multiple Case Study In Does University, Qaryah Tayibah And Sanggar Anak Alam**

**Lena Citra Maggalasari**

The background of this research is the fact that formal vocational school is still the biggest contributor to unemployment in Indonesia. On the other hand, there are non-formal schools with free learning system and have limited facilities, can produce skilled human resources needed by industry and are able to work independently.

This study aims to explore and reveal the educational philosophy that is used as the basis for teaching and learning practices at Does University (DU), Qaryah Tayibah (QT) and Sanggar Anak Alam (SALAM) which can produce output according to industry needs and is able to work independently.

This research is qualitative research with a multi-case study that begins with observations at the SALAM and DU in Yogyakarta, QT in Salatiga Central Java and a study of literature on democratic education and similar educational concepts. The data collection will be carried out at SALAM and DU and QT. The techniques and instruments that will be used are observation, in- depth interviews, questionnaires and documentation. All data will be processed manually and using the Nvivo program to get the correct result and conclusion.

**Keywords:** Vocational Education, non- formal School, Democratic Education, Educational Philosophy, Teaching and Learning in the current era

**An Immersive Technology Approach: How Virtual Reality Affects Polytechnic Student Engagement and Motivation in Indonesia?**

**Arif Ainur Rafiq**

Involvement of students is a challenge in education, particularly in vocational higher education. Virtual reality provides the opportunity to bring real-life experiences into the classroom with the goal of student engagement and motivation. Immersive virtual reality can be used in a variety of ways by leveraging a simple, easy, and beneficial application, which can be difficult to apply pedagogically. This research is a preliminary investigation that consists of three experiments. In experiment 1, students were shown a slideshow with learning material regarding power plants. In experiment 2, students were given a video-based virtual reality simulation, and in experiment 3, students used the Oculus Rift S to experiment with a head-mounted display. The study was conducted on students in the electrical engineering programs at the State Polytechnic of Cilacap, Indonesia, with the goal of investigating the use of immersive virtual reality to boost student engagement and motivation in learning. Students who learnt with a well-designed slideshow, on the other hand, were expected to score higher on a post-test based on the cognitive theory of multimedia learning, even though they did not express higher levels of interest and motivation. However, students who watched the slideshow fared considerably better on the post-test than those who used virtual reality, although they reported lower motivation, interest, and engagement. Based on the data collected, it indicates that students find virtual reality to be reasonably simple to use and that it improves their knowledge and engagement. This preliminary conclusion supports earlier research that shows immersive virtual reality settings foster a strong sense of presence, which leads to increased student engagement and motivation. In addition to this preliminary study, a systematic literature evaluation is being conducted to determine the research's uniqueness. Following that, the creation of a 3D virtual classroom employing the ADDIE method will proceed. Trials on the model's viability and effectiveness were also conducted by expert and subsequently tested on students. Structural equation model analysis will be used towards the conclusion of the research.

**Keywords**: virtual reality, vocational higher education, students' engagement, motivation,

3D virtual classroom, ADDIE method.

**Entrepreneurship Learning Model To Support Student Learning Process In Forming Industrial Revolution 4.0 Entrepreneurship Competencies**

**Ansheila Rusyda Subiyantari**

The industrial revolution 4.0 requires students to always be adaptive, innovative, active, and creative. Vocational High School (VHS) students are not only equipped to be able to work in areas of expertise, but also create jobs by entrepreneurship. In this dynamic condition industrial revolution has a positive side, it can train students in forming entrepreneurial competencies. These skills are not created by itself but by exploring the potential of students by improving the entrepreneurial learning process, such as the learning methods used, media and teaching materials used to support teaching and learning activities.

This research is a literature review and aims to (1) identify the entrepreneurial competencies needed in the Industrial Revolution 4.0; and (2) identify the learning models in the form of learning methods, learning media, and teaching materials used in shaping the entrepreneurial competence of the Industrial Revolution 4.0.

Through this entrepreneurial learning model research, it is expected that vocational students can have entrepreneurial competencies that are more modern, all based digital, competitive, adaptive, and better in constructing cognitive knowledge compared to learning without this learning model. The results of the study are expected to contribute ideas and to the implementation of entrepreneurship learning for other vocational students.

**Keywords:** entrepreneurship, entrepreneurial competence, entrepreneurship learning models, learning methods, learning media, and entrepreneurship teaching materials

# TU Dresden

## Feedback And Instructional Design In Virtual Group Work

**Mattis Altmann**

In the context of my cumulative dissertation, I examine the topic of feedback and instructional design in virtual group work. With the help of the Design Science Research Cycle (Hevner, 2004) recommendations for action and a didactic framework for group learning in the virtual space should be developed. The overarching goal is the improvement of engagement and interaction of the students on a virtual learning platform through feedback as well as instructional design and thus should lead to an improvement of the students' learning behavior and better learning outcomes. In this context, foundations for giving feedback to groups are drawn from presence teaching approaches (Hattie & Timperley, 2007; Gabelica et al., 2012; Haughney et al., 2020). The aim is to investigate how engagement with feedback, as well as interaction on a virtual learning platform and the learning behavior of students can be fostered through feedback and in virtual group work. The foundation for instructional design is the Virtual Collaborative Learning Framework (VCL) (e.g., Clauss et al., 2019; Bukvova et al., 2010) as well as the systematic E-learning arrangement development approach of Hambach (2006). An actual excursus to include team performance research is driven by models from Tuckman and Jensen (1976) as well as Drexler and Sibbet (2011). This should identify phase- oriented needs and phase-specific problems to derive feedback measures, guidelines, and instructional design-related recommendations for action in virtual collaborative learning arrangements. In the current status of the dissertation project, the next step is to conduct a more detailed investigation of feedback needs in the individual stages of team performance models. For this purpose, in an explanatory mixed methods design, questionnaires for self- assessment (students) and external assessment (e-tutors) of team performance in each stage of the case study arrangement were first conducted, followed by in-depth interviews (e- tutors). This is to be followed by a paper on the Literature Base. Here I would appreciate concrete support in determining the framework of the investigation at the E&T summer school 2021.

Regarding the research methodology, the modules in the VCL (Virtual Collaborative Learning)

format serve as a laboratory in which learning in small groups in virtual space is to be investigated. The research methods within the overarching Design Science research cycle include qualitative (Interviews; Content analysis according to Mayring 2014, and mixed methods approach according to Creswell & Plano-Clark (explanative designs QUAN>qual)). In the next step/paper a systematic literature review is planned. Further evaluation and test methods are investigated and may also be part of the discussion @E&T Summerschool 2021. Initial results of the research from the recently published papers Altmann & Clauss, 2020; Altmann, Langesee & Misterek 2021 show that feedback and instructional design in virtual, partly asynchronous teaching cannot be considered separately from each other and that the conscious interlocking of the two dimensions is necessary. Further, reasons for deficient engagement with feedback were identified and design recommendations for increasing student engagement with feedback were derived.

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**Keywords:** Virtual Collaboration, Instructional Design, Feedback, Team Development, Virtual Mobility, E- Learning

**Digitalization in Schools**
**Silvia Blass**

My research aims to investigate teachers' attitudes towards technology and the use of ICTs in the classroom, the satisfaction and transfer in the classroom of the knowledge acquired in the training courses, and the exploration of best practices to provide recommendations and action guidelines for the Ministry of Education. The present research was conducted in 4 empirical phases.

1. A differentiated quantitative empirical study of teachers' attitudes towards the use of technology in their personal and professional lives was carried out. The instrument, in this case, was a paper questionnaire, and a national assessment of Bolivian teachers' attitudes and beliefs towards the use of ICT in private life and in the workplace was carried out.

2. A quantitative study was conducted to explore the results of teacher training courses. These courses are generally online due to the lack of personnel to train teachers, so the effectiveness of the training software system, the contents and quality of the courses were also evaluated.

3. Interviews were conducted with teachers and school principals representative of the second empirical study, a total of 35 school principals were interviewed.

4. The winners of the Educa Innova fair were interviewed, who are teachers who present their best practices in the use of ICTs in the classroom and recommend measures.

The results show that teachers generally have a good attitude towards using ICTs, which varies according to age and the subject they teach. However, in general, teachers have a poor social image of the use of ICTs, which is a factor that increases skepticism towards the use of ICTs.

It was also observed that most of the teachers are satisfied with the courses visited. However, several deficiencies were found in the contents taught, and above all there is great uncertainty about the transfer of the new competencies in the classroom due to different factors.

The following categories were found in the qualitative study with teachers and principals on possible factors to explain the negative transfer: Administrative support, control of educational authorities, ministry support for content production, maintenance, certification, evaluation control, inter-, and intra-school communication, individual characteristics of teachers, the structure of educational policies and laws, classroom- related factors, teaching plan and curriculum, demographic aspects, quality of training, cost of ICT use.

The teachers with the best practices are teachers who voluntarily participate in training courses, who act as multipliers in their schools. However, the motivation for the use of ICTs was born out of their own concerns and not motivated by any government measures.

Since the research was still ongoing at the time of the pandemic, I am also conducting a report based on written accounts of practicing teachers during the COVID pandemic.

**Keywords**: Blended teaching, teacher training, online teaching, digitalization, attitudes, ICTs in the classroom.

**Designing an innovative platform to qualify Corporate Community Managers**
**Alexander Clauss**

Within knowledge-based companies, collaboration is enabled through internal networking of geographically dispersed employees who actively communicate with each other in online communities (OCs). The defining characteristic of OCs is their fluidity, which includes the ability of organizational learning and to react flexibly and promptly to technological and market changes through innovation processes. Corporate Community Managers can provide a significant contribution to this fluidity of corporate online communities by channelling and leading online participation like a riverbed. Their range of tasks include planning, formation, operation, growth, and success of corporate OCs. Their primary objective is to gain sustainable added corporate values in these OCs through co-creation and collaboration. Their support is focused on encouraging proactive participation and fostering communication.

The job profiles of CCMs are characterized two-fold. On the one hand it combines a broad spectrum of requirements of social, technical, and organizational support, which has not been supported by vocational training and study courses so far and thus favors lateral entrants. On the other hand, the CCMs should facilitate the organic growth of OCs in companies, which calls for a complementary qualification of the employees who manage them. A solution to address this deficiency are qualification offers in the form of specific micro qualification modules instead of large classical trainings or rigid study modules. They allow the design of individualized, flexible further training measures with consideration of the respective personal and organizational framework conditions. However, it is exceedingly difficult for potential CCMs to find guidance for the development of necessary competences because of the lack of standardized and scientifically based qualification frameworks and competence profiles. Large companies already offer defined job descriptions and task profiles for CCMs. However, these are designed to address specific company requirements and are therefore difficult to generalize from a scientific perspective.

As a design-based research project this dissertation aims on the iterative development of an innovate platform for guided competence development of CCMs based on micro modules (see figure 1). The platform's foundation is a self-evaluation tool, created and evaluated by expert

interviews, a Delphi study and prototyping (A). Using the tool, allows to identify existing qualification gaps (B). Concrete, scientifically profound recommendations for the closing of gaps are given in the competence development guide, which is created through a systematic literature review and expert interviews. Based on this results design principles for specific micro-qualifications are developed (C). It is planned to extend the platform to a competence shop and make it accessible for commercial providers of qualification measures who can classify their qualification offers based on the same anchor examples. The platform also gives them the opportunity to develop innovative programs for the identified competence levels as micro modules. It is in preparation to evaluate the applicability of this concept critically in a concluding focus group interview with providers of qualifications. Finally, when a shop solution will be implemented, then similar to customer reviews, participants will be able to evaluate the extent to which the qualification measure has contributed to their development of competences (D).

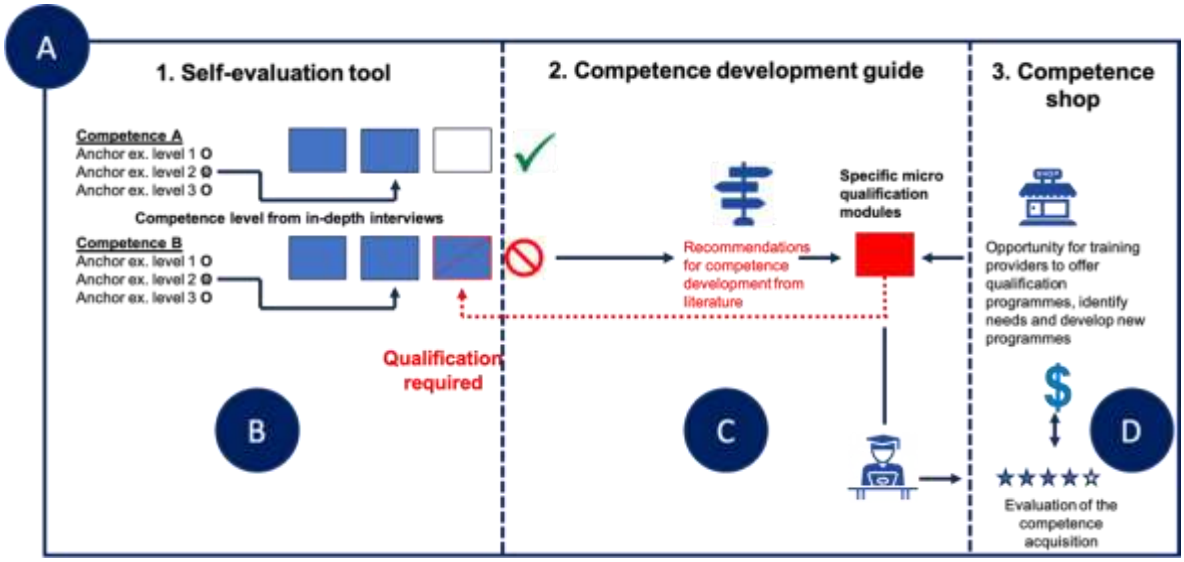


*Figure 1. Overall design objective of the entire research project*

**Keywords**: Corporate Community Managers, competence development, micro modules, vocational education, Training on the job, qualitative research, expert interviews, systematic literature review.

## Privacy in the lifeworld of adolescents

**Selina Irnleitner**

With the digitization and the everyday use of social networks, privacy underwent a profound change. By publishing private information in the form of texts, photos or videos, people can communicate more directly, live participation and change their identity as they want. However, the protection of security, autonomy and freedom of users is exposed to a new risk, because data is stored, processed and made commercially usable in a non- transparent way. In this context, this dissertation project investigates young people's concepts of privacy in social networks. The focus is on users between the ages of 16 and

19. With the concept of lifeworld theory, different living conditions will be taken into account and the role of social inequality will be determined.

### Research Objective

The need for research in this thesis arises on the one hand from the changes in technological innovations, which go hand in hand with the expansion of the availability of social networks. This makes it possible to communicate with others regardless of time and space. On the other hand, significantly more young people have access to platforms than a few years ago, due to media conditions and social contexts. In accordance with the general pressure of expectations, it seems self-evident to be constantly online and thus digitally available. In addition to the topicality of the subject, there is also the research gap that privacy research has in connection with individual concepts of young people in social networks. The selected method triangulation promises new, coherent findings to strengthen media and privacy literacy by using social networks more consciously and by giving more attention to the concept of privacy in the digital space.

### Method

Due to the young target group, the sensitive topic of privacy, as well as the largely untouched research landscape regarding the combination of topics, a multi-level procedure of methods was chosen. Components of the method triangulation are group

discussions, digital diaries as well as ethnographic individual interviews (all with adolescents). The aim of the research is to derive specifics of new privacy constructions of adolescents. The evaluation of the data is carried out in the form of a qualitative content analysis according to Mayring, since differences in sociocultural backgrounds become particularly clear here. In addition, the evaluation method represents a transparent and rule-governed form and guarantees the reliability of the research.

### Current status, first findings and planned steps

The PhD was started in December 2020 and is scheduled for three years.

So far, theoretical literature analyses have been made and the first chapters have been written up in a first version. In addition, a group discussion has already been conducted, transcribed and analyzed. Accordingly, initial findings are already available on the concept of meaning of privacy and its value. Currently, the digital diaries of the young people are being prepared. After reviewing the material, the individual interviews will be conducted and then the second phase of the survey will start with a new group.

**Keywords:** Privacy research, Youth studies, lifeworld, social networks, ethnological interviews, social inequalities

## Blended Assessment

**Anne Jantos**

The scientific goal is to develop, implement and evaluate a blended assessment model that represents the diversity of assessment methods in higher education and serves as a basis for the combination of different assessment forms. The model has three dimensions with the following characteristics: individual or group, analogue or virtual, summative and formative. The model is intended to show the different methods that can be found in each combination and to serve as a decision-making basis for teachers to plan and implement their blended assessment. For example, the group-virtual-summative combination includes the online lecture assessment method and the submission of a final report. In the combination individual-analogue-formative we find the learning diary used for reflection or a consultation with the lecturer. Furthermore, explicit implementation tips and a selection of tools for implementation will be given.

The current method of awarding grades and thus degrees via summative assessment is didactically outdated and leaves students stressed and dissatisfied. Formative assessment, in contrast to summative assessment, has a transforming influence on the learning process (Black, 1986). However, this can only be achieved with a considerable effort on the part of the educator and therefore cannot be implemented comprehensively. The solution could lie in a blended assessment approach that combines formative and summative assessment and makes use of digital media to assess students' performance in a meaningful and comprehensive way. I'm interested in discussing this idea and it's merit to reflect on my approach at summer school this year.

The blended assessment approach will be created and implemented in winter semester 2021/2022 in a module with master students “Designing E-Learning

Arrangements” and evaluated by means of interviews with the students. Based on the outcome I will further develop it. I will work on publications for this approach, give recommendations for action to teachers at the university and further the knowledge base.

Using design science research (Hevner, 2004), the scientific goal is to develop a didactical approach to mix assessment formats for higher education. In the area of problem raising, the needs of students and university teachers were identified, which will be used as the basis. In the second step, a literature review will be carried out to examine assessment possibilities and new developments in higher education based on the existing knowledge base. In the rigor cycle, the blended assessment approach is created, implemented, evaluated, and further developed.

My two papers revealed that the current process of written summative e-assessment is problematic. Students have great opportunities to cheat - 28% of the students surveyed at the Faculty of Business and Economics at TUD successfully cheated in winter semester 20/21. Lecturers have an increased effort with the virtual implementation of written exams because they need to create hurdles to prevent cheating. There are many technical, didactical and organizational hurdles for the implementation of online written examinations.

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**Keywords**: E-Assessment, Blended Assessment, E-Learning, Formative Assessment, Summative Assessment, Blended Learning, Higher Education

**Cooperation in the Field of Vocational Education and Training: Research On Cooperation Between Learning Places In The Area Of Hotel Management In Indonesia**

**Rita Fransina Maruanaya Supervisors**

This research focuses on the cooperation between learning places (Vocational High School and Company) in the area of Hotel Management in Indonesia. The main aim of this research is to examine the cooperation activities of selection schools and hotels in four Provinces namely Maluku, Papua, Yogyakarta, Ost Java.

The research used a qualitative and quantitative approach. Content Analysis was used to get the data about the cooperation of learning places in the Education Law and Regulation of the Republic of Indonesia. Qualitative expert interviews were carried out to get the information about best practice of learning places cooperation from the experts of vocational education. Quantitative questionnaire was used to do the comparative study. The questionnaire was divided into 4 indicator aspects, including industry participation in planning, implementation, finance and organizational structure and human resource development using a Likert Scale. Respondents are teacher of vocational schools and hotel experts in Maluku, Papua, East Java and Yogyakarta Provinces.

Furthermore, to compare, especially to find out whether there was a difference between the four provinces in the activities of cooperation between industry and vocational schools on each aspect mentioned above, Kruskal Wallis test was used, while the Mann Whitney test was used to compare two provinces. Welch Test was used to find out the difference in the overall aspects of industry participation for vocational education between the four provinces and the Tukey Test was used to compare two provinces. All tests were carried out with a significant level of alpha 5%.

The result showed that there was a significant difference between the activities of cooperation between Industry and Vocational High Schools in Maluku, Papua, East Java and Yogyakarta in terms of planning, implementation, finance and organizational structure and human resource development. The content analysis showed that there are only general formulation of the objectives and characteristics of the cooperation between learning places in education law and regulation, while the clear statements about it emerge in the national framework curriculum.

Based on the results of the research, a feasible concept for cooperation between learning places for Vocational school in Indonesia was developed. While it is conceded that the model developed cannot be implemented by the vocational school and industry in total from beginning, it is recommended that some of the inherent suggestion at micro level be taken up immediately.

**Keywords:** Cooperation, Learning Places, Hotel Management, Vocational Education and Training, Concept of Cooperation

**Linkage between Vocational Training Institutions and Industry in Laos: TVET programme contributing to the ready-made garment sector**

**Santiphap Meunmany**

In the context of Technical, Vocational Education and Training, growing of technology and the need of industry in term of skills. Dual- cooperative training is a programme to promote the cooperation of the stakeholders (VTIs, LNCCI, Business partners, trade working groups, etc.) that combines school-based training in TVET institutions with workplace- based training and experience in companies in order to provide with the technical skills, knowledge and work attitudes that meet the current demands of companies. Based on the analysis of current theory on cooperation between VTIs and industry, investigation of the state of worker's qualification in Ready-made garment industry and the suitability of the curriculum in VTIs with the skill needed in the Ready-made garment industry, investigating cooperation activities between VTIs and the Ready-made garment industry and to provide a suggestion (new idea) to improve the training concept in order to meet the needs of innovation and improving quality of training programme.

**Keyword:** TVET, Vocational Education, Training, Curriculum, Skill development, cooperative training

## From Improving e-Mentoring to Empowering Students' Entrepreneurship

**Laleh Raeisy**

Universities, try to help especially incubators and accelerators to play a more effective role in creation of entrepreneurial companies by students. The environment of incubators and accelerators needs to have a strong and developed entrepreneurial support system to be able to cover the activities of actors in the field of entrepreneurship, build a wider network of relationships with actors outside the system and ultimately increase the support capacity of accelerators to the point where they drive the innovation system toward a globalization approach.

Despite this view of the university and considering the employment needs of graduates in society, the existence of some inefficiency in the professional skills and competencies of graduates in recent decades and the declining motivation of young workers in employment and employment in the industrial sector is a challenge. Researchers have made various suggestions to address this issue, including improving the practical education of students. E-mentoring is one of the strategies that seem to rely on these technologies to play a valuable role in the development of employment skills in students.

E-mentoring, the process of utilizing the capabilities of computers and networks to overcome geographical distances and facilitate communication, is widely used as a fundamental way to communicate between people with higher work experience and students as inexperienced or inexperienced people. Because this creates a continuous and useful relationship without spatial limitations and in an interactive framework that ultimately leads to the creation, transfer and development of knowledge.

The researches as well as the proposed infrastructures that have discussed entrepreneurship and increasing students' skills in this field, have focused more on designing and implementing strategies for communication between mentors and students, both at the national, regional and international levels, but what can be done is e-mentoring to facilitate and complete the development of entrepreneurship is a systematic look at this issue. From a systematic point of view, e-mentoring is not defined as a process that provides benefits and facilities for students (as mentees) in accelerators, but also from a systematic point of view of other factors and actors, including mentors in e-mentoring systems of accelerators and incubators are involved as well as stakeholders. So, their needs should be addressed in this system, so that the e-mentoring process in these centers follows a more effective flow.

Therefore, e-mentoring services to develop the knowledge, abilities and skills of students as future entrepreneurs, it needs to design the mentoring process in the form of a system, so that in addition to considering the role and benefits of all stakeholders involved in e-mentoring, it can create more effective and efficient communication at the regional to international levels. Based on which, this research uses a multiple Mixed-Method research design and a Design Science Research Methodology to design and evaluate a e-mentoring system for academic accelerators in order to empower students' entrepreneurship abilities.

**Keywords:** e-Mentoring, Technology-based Learning, Startup Group Works, Entrepreneurship, Triple Helix

**How academic teaching staff uses digital media to support their courses**
**Jana Riedel**

Based on the perception that infrastructures for the use of digital media in university teaching are widely available, but that the broad didactic possibilities of their use are only insufficiently realized, the PhD project investigates the way media are used at universities in Saxony. The construct of learning cultures serves as a basis for analyzing the quality of media use. From a comparison of normative demands for a "New Learning Culture" and sociological approaches to the study of learning cultures, the author derives a research approach that combines didactic features in a functionalist approach to the study of learning cultures. She sets out the extent to which the use of digital media can fulfill the characteristics of the so-called New Learning Culture and surveys the current state of media use using an online survey with supplementary qualitative group interviews. The surveys took place in 2016, but are compared to studies conducted during the pandemic semesters.

The studies were evaluated with a special focus on the usage motives of teachers, subject- specific usage differences, and the implementation of e-assessment scenarios, and were classified in relation to the realization of the criteria of a "new learning culture". The results show that digital media are predominantly used in presentational, knowledge- transferring and unidirectional formats, whereas activating, transfer-oriented and cooperative formats (before and during the pandemic) are rarely used. In this context, subject-specific differences could be identified, which are expressed in a more frequent use of almost all media formats queried by teachers in the humanities as well as in law/social sciences/economics. Particularly in the area of e-assessment, the teachers' wishes for increased effectiveness and quality improvement through the use of digital media are evident. At the same time, obstacles due to legal framework conditions and necessary equipment become apparent here even before the associated time expenditure. Basically, the driving factors for the use of media are, according to the teachers, primarily their own motivation and media competence. Recommendations for supporting university teachers in their use of media can therefore be derived from the present surveys. These are summarized in four areas: Reduction of legal uncertainties and technical hurdles, recognition and reduction of the time required, and strengthening of the didactic competence of teachers.

The cumulative doctoral project is in its final phase, with a focus on merging and classifying the results in an overall context. Here it becomes clear that universities are to be regarded as learning organizations and that, in order to further develop the didactic potentials resulting from the use of digital media, the provision of infrastructures can lead at most to single-loop learning. However, double-loop and deutero-learning are desirable, as is the understanding of the university as a network in which learning should take place together and not in the environment of individuals. The work links the existing discussions about digitalization, New Learning Cultures and competence development in a new way and wants to stimulate the reflection and discussion of existing structures at universities by presenting the current state of media usage.

**Keywords:** Higher Education, Academic Teaching, Digital Enhanced Learning, E-Learning, New Learning Cultures, Competence Promotion, Self-Directed Learning

**Research of E-Learning Evaluation and Affecting Factors in Enterprise Training Programs**
**Mingze Shi**

The trend of global economic integration is irresistible, and the competition between enterprises is becoming increasingly cruel. The management model of western developed countries is increasingly colliding with the management model of traditional Chinese culture. The development of modern enterprises is becoming more and more complicated and internationalized. Once the company expands its scale and expands its business, or changes corporate structure and management concept, then the human resource management pattern will change, which brings new challenges to each division and every employee. Therefore, in order to create, maintain, and strengthen the core competitiveness of the company and preserve the status and superiority of all members of the company, it is imperative to integrate and train employees. Therefore, the eagerness for a brand-new training method is more urgent. E-learning training becomes inevitable.

As an advanced learning and teaching management method, E-learning can closely integrate learning content with business services, and help companies to quickly establish learning mechanisms to form core competitiveness and achieve their strategic goals. The knowledge and technology-intensive characteristics of large enterprises determine the appropriate implementation of E-learning. With the rapid development of enterprises, the technical level has been significantly improved, the life cycle of products has been accelerated, and knowledge is updated quickly. E-learning facilitates the sharing and exchange of knowledge and information and promotes the innovation of business and technology. In traditional training, staff training and working hours are in great conflict. It makes great difficulties to the training center. In addition, the teaching materials are produced at the training center, so each trainer needs to bring heavy textbooks to go to each branch office. E-learning adopts electronic transmission to transfer learning content, It´s fast and effective. It solves conflicts between employee training and work.

The main purpose of this paper is to study and determine E-learning training assessment methods and the influence factors of E-learning training effect. Provide guidance and advice to government agencies and companies which use E-learning training model.

**Keywords:** Assessment and Evaluation Ways, technical platforms/ Tools, Hybrid Learning - Virtual Mobilities

**A Metacognition-Based Digital Learning Worksheet**
**An Authentic Project-Based Learning Guide for the Undergraduate Preservice Automotive Vocational Teachers**

**Afri Yudantoko**

Several challenges have been being faced in many sectors nowadays. These encourage individuals to be lifelong learners to survive in their life and career. Vocational education which has a function for preparing students in working life needs to be paid attention to for dealing with many challenges. This research project has an objective to develop an instructional technology based on metacognition in form of a digital learning worksheet for automotive vocational preservice teacher education. This worksheet will be used as a project-based learning guide to promoting metacognitive abilities that are essential for conducting lifelong learning.

Design-Based Research (DBR) and Experimental Research (ER) are utilized in this research project. DBR will be used to construct the metacognition-based digital learning worksheet while ER will be used for assessing the effectiveness of the worksheet. This DBR consists of six micro-cycles (MiC). Firstly, in the MiC 1, collaboration with an automotive lecturer in UNY is essential to identify the problems and the deficiencies of current educational practice. Secondly, the potential solution is created in the MiC 2, starting with inviting automotive teachers, automotive practitioners, educational psychology experts, and educational media experts in a focus group discussion (FGD) to discuss the needed learning materials and needed criteria for constructing the worksheet. Thirdly, in the MiC 3, the product of the potential solution is assessed by educational media experts, subject matter experts, and educational psychology experts. Fourthly, in the MiC 4, the students give their opinion about the strengths and weaknesses of the product. Fifthly, based on the data from the previous step, in this MiC 5 step, the product is redesigned and reconstructed. Finally, in MiC 6, the final product is judged on its usability by using a usability evaluation questionnaire. Then, this product will be evaluated on its effectiveness by having the ER.

In the ER, the design of post-test control and the experimental group will be used. The group members are selected randomly into those two groups. The experimental group members will use the worksheet while the control ones will use regular project-based learning. The students in both groups will be assessed on their metacognitive abilities and the quality of their learning products. The effectiveness of the worksheet will be analyzed based on the Mann-Whitney U test and t-test.

The expected result of this research project is having a metacognition-based digital learning worksheet that could prepare students to have lifelong learning abilities that eventually will produce their work better. As automotive vocational teacher candidates, they need to always stay updated along with the growth of both automotive technology and educational technology so that they could conduct meaningful teaching and learning activities for their students that are relevant to the recently needed skills of the world of work and also could deal with many existing challenges.

**Keywords:** metacognition, lifelong learning, digital learning worksheet, project-based learning, automotive vocational teacher candidates.

## Designing adaptive learning Pathways Based on the User's Interest Using Interactive Narration

**Theresia Zimmermann**

The aim of this research project is to analyse different interactive storytelling models in order to derive a concept for designing personalised learning pathways that are integrated into interactive narration. Interactive narration can help to see issues from different perspectives and enable knowledge transfer and situated learning (Dede 2009, p. 66; Lugmayr et al., 2017).

One way of achieving this could be by using location-based narration, particularly in the context of exploring historical sites.

As a first step, different storytelling models have been investigated with regards to creating interactive narrations based on the user's interest. These storytelling models show the importance of identifying the user's preferences regarding specific story content in order to

design immersive stories (Nakasone et al., 2009; Garber-Barron & Si, 2013; Pujol et al., 2012). For instance, Nakasone, Prendinger and Ishizuka (2009) propose an interactive storytelling model using rhetorical structure theory (ISRST). The goal is to generate appealing stories by capturing interest through user interaction. To achieve this Nakasone et al. (2009) used an Interest Indicator Bar that allows the user to indicate their interest value regarding the story content by either wheeling the mouse up or down on the Interest Indicator Bar. Moving up means high interest and moving down indicates low interest (Nakasone et al., 2009, p. 667). In order to achieve a more subtle way of evaluating the user's preference Garber-Barron & Si (2013) created an automatic storytelling system inspired by ISRST. This storytelling system aims to achieve a balance between novelty and topic consistency. The user is either presented content where they have already shown interest or material that might potentially trigger new interest. To capture which content is relevant for the user, the user can choose from different statements addressing the narrator. These statements are tagged with labels related to the story content, e.g. Fear or Love. Based on these labels a pre-defined profile will be matched with the user and builds the base for further story content recommendations (Garber-Barron & Si, 2013, p. 129f.). These storytelling models show different approaches to evaluate the user's interest. In a next step, a concept was derived from these approaches to develop an initial concept for adaptive learning pathways.

Proceeding from these storytelling models a first prototype for an augmented reality app was designed that considers the user's initial interest and adapts to the user's potentially changing interest during the use of the application.

The purpose of this application was to raise awareness for the everyday life of the Jewish population of Dresden in the years before World War II. The prototype was then tested with university students with an academic background in history didactics. The initial results from this quantitative analysis suggest that users prefer an interactive narration that meets their personal interest. The consequence of this first evaluation is a more intensive examination of location-based narration and its role in developing personalized learning pathways.

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