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PROVIDING UNIVERSITY STUDENTS WITH VIRTUAL INTERNATIONAL LEARNING EXPERIENCE – A CASE STUDY FROM JORDAN

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Abstract:
International experience is important to prepare university students for the modern labour market in the globalised knowledge economy. While financial, societal, and political obstacles may limit students' mobility in developing countries, using Web 2.0 and Social Media applications can integrate them in a virtual social learning environment to interact with peers and instructors abroad in an enjoyable inclusive international Virtual Collaborative Learning experience. This study investigates the factors influence Jordanian students' perception of this experience and its enhancement potentials to fit the needs of developing countries. Thirty contextual, design, and individual factors were linked by seven course participants from Jordan to their reported high motivation, enjoyment, and satisfaction in this, for them, new learning scenario. Recommended improvements in the design and implementation of similar arrangements are also concluded from the qualitative evaluation of this empirical case study.

Keywords: Virtual Collaborative Learning; Internationalization; Web 2.0; Developing Countries; Jordan

1. INTRODUCTION

Learners in developing countries have limited access to international educational experiences due to high travel costs, strict visa regulations for many countries, political or security issues in some regions that prohibit academic visits from foreigner students and instructors, societal and traditional restrictions that reduce the mobility of certain groups like female learners, or old educational systems that tend to resist didactical modernization and organizational change. Web 2.0 and Social Media applications empowered the development of interactive learner-centered virtual learning environments that enable collaborative knowledge building in geographically separated online social communities.

Technology-enhanced learning has been introduced on a wide range to enhance learning processes and increase educational impact also in developing countries (Gulati, 2008). While classical e-learning applications focused on learners' interaction with digital learning materials, interactive Web 2.0 applications empowered users' contribution as key actors (Gillmor, 2006) and opened a new horizon for more participative learning approaches like "Online Collaborative Learning" based on successful pedagogical methodologies that have considerable educational potential (Roberts, 2004; Davies & Merchant, 2009). Modern learning environments implement Social Software to support interaction within and between groups (Selwyn & Grant, 2009) and involve individual learners in a virtual learning community emphasizing the learning experience as a "socially transmitted and situated process" (Klauser, Schoop, Wirth, Jungmann, & Gersdorf, 2004, p. 7). This paper presents the qualitative evaluation of an empirical case study of integrating Jordanian students in an international Virtual Collaborative Learning course at the Technische Universität Dresden in Germany.

After an introduction to Virtual Collaborative Learning and its potentials for developing countries, the study methodology will be presented in the third section. The fourth section presents and discusses the results of the study and the final section proposes recommendations and future research.

2. VIRTUAL COLLABORATIVE LEARNING (VCL)

Virtual Collaborative Learning follows a project-based constructivist learning paradigm to integrate the benefits of Computer-Supported Collaborative Learning (CSCL) in the Virtual Classroom as an effective group learning environment (Hiltz, 1988). These benefits include: skills improvement, positive impact on atmosphere, positive attitude towards learning, acceptance to deal with more difficult problems, effective group dynamics, and enhanced students' performance (Lehtinen, Hakkarainen, Lipponen, Rahikainen, & Muukkonen, 1999). The Chair of Information Management at the Technische Universität Dresden in Germany develops and implements since 2001 Virtual Collaborative Learning arrangements in formal higher education to improve students' professional competence, team competence, media competence, and intercultural awareness (Schoop, Bukvova, & Gilge, 2006). Through cooperation with international partner universities, students have the chance to collaborate with peers and instructors form other countries and gain international academic experience during their regular study program, which offers an advantage for students who cannot travel abroad.

Developing countries can benefit from Virtual Collaborative Learning to enhance learning processes and facilitate immersive, enjoyable, high-impact learning experience. It posses a considerable potential to (1) increase access to educational materials and the educational experience in the virtual classroom, (2) increase cost efficiency by allowing flexible location-independent tutorial support and optimizing workload, (3) increase gender equity by enabling female leaners and instructors to actively participate in the learning process in the virtual social environment from their own place, (4) increase employability by improving learners' interpersonal and professional skills and prepare them for the modern labour market, and (5) fostering capacity building on teachers' side by enhancing their media competence and teaching practices (Tawileh, Bukvova, & Schoop, 2013).

3. METHODOLOGY

The purpose of this study was to investigate how Jordanian students, as natives of an Arab developing society, perceive Virtual Collaborative Learning as an innovative approach to gather international academic experience at their home country. In contrast to distance learning scenarios using classical e-learning applications, they use collaborative social software to actively build and exchange knowledge with peers and instructors abroad in a virtual social learning environment. Jordanian masters' students from Princess Sumaya University for Technology attended a regular

international Virtual Collaborative Learning course and were interviewed afterwards to evaluate their perception of this experience and the factors affected it.

3.1. Course description

The course "International Case Study Work" is a part of the regular masters' module "Blended Learning" at the Faculty of Business and Economics of the Technische Universität Dresden and is offered as a Virtual Collaborative Learning arrangement, where students from Germany collaborate with students from international partner universities in small groups on an authentic case study to solve a given ill-structured problem. In their self-regulated research and knowledge building activities, students intensively practice: virtual team work, critical thinking, problem solving, collaborative decision making, professional negotiation and presentation skills, cross-cultural communication, and English language for academic work. In the summer term 2013, seven students (3 Female and 4 Male) from the Technische Universität Dresden in Germany and eleven students (3 Female and 8 Male) from Princess Sumaya University for Technology in Jordan participated in this course.

The participants were divided in three groups of 6 members from both locations and were assigned to predefined roles in each team. The main task was to compare and recommend Web 2.0 applications for to implement effective collaborative learning in a fictive university. The roles in the teams were distributed based on participants' previous experience and preferences to increase their motivation. An open source Social Network (based on elgg.org) was implemented as a central communication platform for all participants during the course. The groups had the chance to freely choose additional Web 2.0 tools for their virtual teamwork based on a set of recommendations including: Skype and AdobeConnect for chat and Audio/Video conferences, trello.com for collaborative project management, doodle.com for online appointment coordination, and Google Drive for online file editing and sharing. In a written team agreement, each group documented its organization and the additional Social Media tools it will use to communicate and collaborate to solve the given case study. The participants where provided with readings and e-lectures as self-study preparatory materials. After an intensive virtual collaboration phase of five calendar weeks, the final groups' outcome was a virtual presentation of their recommended solution and its rational.

3.2. Data collection and analysis

To explore the perception of Jordanian students of Virtual Collaborative Learning, a qualitative open-ended interview guideline was developed to address the aspects of: previous e-learning and international experience, personal motivation, course structure, teaching and learning methods, problems and difficulties, the learning environment, perceived learning impact, tutoring and support, satisfaction, and enhancement recommendations. Seven participants (2 Female and 5 Male) voluntary participated in the evaluative standardized interviews. This method was selected to gain an in-depth understanding of participants' perception of the program (Patton, 1990). The seven interviews of 41-58 minutes were conducted in July 2013 using the online conferencing tool AdobeConnect and were recorded with the interviewees' permission. Smooth verbatim was selected to transcribe the interview recordings as it provides an understandable text with original wording (Howitt, 2010). The interview transcripts were coded following the inductive category formation procedure of the qualitative content analyses method using the online software qcamap.org (Mayring, 2014).

4. RESULTS

Inductive coding of the seven interview transcripts resulted in a set of thirty distinct categories articulating: contextual factors, design factors, and individual factors that affected the interviewees' perception of the Virtual Collaborative Learning experience. Table 1 summarizes the formed categories in a descending order of the their absolute frequencies in the seven transcripts. It also displays the number of interviews they were mentioned in (fifth column) and the categories' frequencies according to interviewees' gender (sixth and seventh column). The formed categories are discussed in details with anchor examples from the interview transcripts in the following sections. Participants' names were replaced with codes (F=Female, M=Male) to protect their privacy.

4.1. Contextual Factors

The first set of factors affecting Jordanian students' perception of Virtual Collaborative Learning is related to their societal, environmental, academic, and professional context and reflects their experience with local conditions. The contextual factors coded in the interviews are described here and supported by anchor examples in Table 2.

Table 1: Category frequencies in the analysed interview transcripts

Main Category	Code	Category Title	Absolute Frequency	Category occurs in N documents	Female	Male
Contextual Factors						
	CE1	Limited use of e-learning	33	7	9	24
	CE2	Limited access to international experience	23	7	4	19
	CE3	Classical teaching style	16	6	1	15
	CE4	Limited connectivity	9	4	0	9
Design Factors						
Groups Characteristics						
	GC1	Effective virtual teamwork	27	6	15	12
	GC2	Mutual peer support	26	7	15	11
	GC3	Positive peer influence	24	7	11	13
	GC4	Varied language skills	18	6	1	17
	GC5	Multidisciplinarity	15	7	7	8
	GC6	Familiarity with group members	12	5	5	7
Content and Organization						
	CO1	Tutoring and support	33	7	11	22
	CO2	High workload	27	6	9	18
	CO3	Materials and roles	27	7	9	18
	CO4	Limited interdependence/exchange	23	7	8	15
	CO5	Simple tasks	17	5	6	11
Technology Characteristics						
	TC1	Useful/Easy-to-use tools	24	7	8	16
Individual Factors						
Anticipated benefits						
	IA1	Flexibility of online learning	24	6	14	10
	IA2	Preparation for study and work	21	6	8	13
	IA3	Learning from foreigner peers	16	5	3	13
Interest in new experience						
	II1	New people and cultures	29	7	7	22
	II2	New teaching/learning methods	23	5	7	16
	II3	New use of technology for learning	22	7	6	15
	II4	New communication methods	17	6	8	9
Personal perception						
	IP1	High satisfaction	45	7	8	37
	IP2	Initial anxiety and confusion	35	7	12	23
	IP3	High intrinsic motivation	18	6	6	12
	IP4	High enjoyment	17	6	9	8
	IP5	Low extrinsic motivation	12	7	5	7
	IP6	High self-efficacy	9	7	3	6
Learning preferences						
	IL1	Presence and Blended Learning	18	6	3	15

All interviewed Jordanian students reported a *limited use of e-learning (CE1)* applications at universities in their country based on their experience during their bachelor and masters studies. The Virtual Collaborative Learning course offered them the first experience with "real" e-learning activities beyond exchanging course materials per e-mail and over a website as they mentioned. Another consensus between the interviewed Jordanian students was noticed on their *limited access to international experience (CE2)*. This course was the first time they collaborate with peers abroad on a project related to their study. The interviewees highlighted the role of local instructors in these

limitations by keeping used to a *classical teaching style (CE3)* and not initiating international cooperation with colleagues abroad. The effect of *limited connectivity (CE4)* on Jordanian students' experience in the virtual classroom was only reported by male interviewees, who recommended to grant students an access to a computer laboratory at their university with the needed hardware and software and a high-speed Internet connection during the virtual collaboration phase.

Table 2: Anchor examples of the categories under contextual factors

Code	Anchor examples
CE1	"Frankly, I did not have any experience with anything related to e-learning" [M2]
	"as a previous experience at BAU or PSUT, I did not have any e-learning experience" [M5]
CE2	"maybe there is no other university in Jordan that cooperated with another university" [F1]
	"like not Arabs, as work or study, this was the first time I deal with them" [M4]
CE3	"there should still be some universities or instructors who are not open to the issue" [M1]
	"even the instructors are as one says, old fashion" [M5]
CE4	"in Arab world there are many problems that you might not face at your side, like the internet here is still new" [M5]

4.2. Design Factors

In addition to the contextual factors above, the interviews with the Jordanian students reported a set of design and organization factors that affected their perception of the Virtual Collaborative Learning experience. These are described here and supported by anchor examples in Table 3.

Table 3: Anchor examples of the categories under design factors

Code	Anchor examples
GC1	"it would not make a difference if they all are in one country or in two different countries" [M1]
GC2	"they understood us and helped us more, and reduced the tasks for us so they get a part and we get a part" [F1]
GC3	"we definitely want to show the new person that we also are hardworking" [F2]
	"he was almost 24 hours active online, so if one needed anything the manager was there" [M1]
GC4	"The language plays a role, I am not like fluent to talk in English, but I can sort things out" [M4]
	"the communication was not very interactive, because there was the language deficit" [M5]
GC5	"I learned how to work in a team, regardless of the backgrounds, this was the best thing" [F2]
	"This is our first time we work with somebody not from our discipline in education" [M3]
GC6	"we did not know each other, and by the way it was the first time we meet each other as a team, so we did not know the levels of each other, I think this could have a disadvantage" [M4]
CO1	"we did not know if this was right or wrong, yes, they could give us a hint like this is right go ahead, or this is wrong" [F2]
CO2	"we had a high pressure, I had last semester nine hours planned, it means three courses, we had exams and papers to write and presentations […] I had somehow pressure" [M5]
CO3	"this was the first time for me to have a person responsible for the team […] when you have someone responsible, who follows-up and so, the work would be more organised" [F2]
CO4	"In our group it was little, we were not mentioning external things, we were only on work" [F2]
	"it was that if somebody writes a document that's it, we adopt it and continue" [M3]
CO5	"the course we studied was simple to a degree that we did not need to create new ideas" [F2]
	"I was expecting more than this, like we should create a program or so" [M5]
TC1	"the communication tools were available, and the website was very good" [M5]

- *Group Characteristics:* Six of the interviewed Jordanian students valued *effective virtual teamwork (GC1)* they practiced in this course and considered it equivalent to face-to-face teamwork. This was facilitated by the *mutual peer support (GC2)* and the *positive peer influence (GC3)* all interviewees experienced with their group members, which helped to overcome the *varied language skills (GC4)*. The new experience with *multidisciplinarity (GC5)* in the teams was associated with some confusion at the beginning of the course due to the absent previous *familiarity with group members (GC6)*.
- *Content and Organization:* All interviewed Jordanian participants reported sufficient *tutoring and support (CO1)* when needed, but required more feedback and guidance. Due to their

multiple commitments, most interviewees perceived a *high workload (CO2)* and requested *materials and roles (CO3)* to be more clearly explained. On the other hand, the detailed roles' description and predefined deliverables' format led to task separation and solution orientation in the groups, which resulted in *limited interdependency and exchange (CO4)* between the participants and a let some interviewees feel their creativity constrained by very *simple tasks (CO5)*.

- *Technology Characteristics:* All interviewees felt comfortable with the used Social Network and were excited to get to learn and work with the proposed *useful/easy-to-use tools (TC1)*.

4.3. Individual Factors

The most important aspect in this study is the subjective students' perception of Virtual Collaborative Learning, which depends to a high degree on personal factors of each individual. The reported design factors are described here and supported by anchor examples in Table 4.

Table 4: Anchor examples of the categories under individual factors

Code	Anchor examples
IA1	"from a mother point of view, it is comfortable to attend, like if we have a lecture and we do not need to communicate, sometimes live is better" [F2]
IA2	"the more one increases his contact with universities abroad, or with people in the west, or in countries were the research is developed, it would be a good chance" [M2]
IA3	"I learned commitment, like for example we have to deliver this on that day and so on, like we all have to have delivered, otherwise we will look bad" [F2]
II1	"I wanted to see, I mean to deal with new people, and how they think and so" [F2] "I want to collaborate with people from abroad, I want to deal with students from a different language, I want to deal with students from different customs and traditions" [M4]
II2	"to have a specific problem or case study we had to work on, I did not have similar thing before, I also knew it in this project" [M1]
II3	"Social networks as it is we use them in business not as e-learning, not for educational use, till now it was not relevant, I mean we did not use them in an educational subject" [M3]
II4	"I learned from this course how to understand the person from his writing and keep it the simplest possible" [F2]
IP1	"I would definitely recommend such a course for other students 100% without hesitation" [M1] "This was a new experience I will add to my CV, I guess it will give me like an advantage" [M4]
IP2	"I was afraid like how could we deal, how would we tell them, and so" [F2] "At the beginning things about this cooperation were not very clear, we passed a long time and things were still ambiguous, we did not know what would we produce at the end" [M5]
IP3	"we did not feel the experience like an obligatory thing we have to do, we felt it a nice experience to try" [F1]
IP4	"the most beautiful thing is that for the first time this course includes such a thing, so it really was the most enjoyable thing in it, this project" [F2]
IP5	"maybe our students if there was no grade distributed they would not attend" [F1] "the course was obligatory, which also made me continue in the project" [M4]
IP6	"there was no problem for us as Arabs, like language difficulties or commutation difficulties, in opposite, we were motivated and very happy with this chance" [M2]
IL1	"I may would like to have it mixed, yes, it could be mixed, like the same course could be partially online and we also have to be present, I think this would be good" [F2]

- *Anticipated Benefits:* Despite the reported limited use of e-learning at their universities, interviewed Jordanian students were aware of the *flexibility of online learning (IA1)* they benefited from in this course. Both female and male interviewees considered the Virtual Collaborative Learning experience a good *preparation for study and work (IA2)* locally and abroad, that provided them with new useful skills and knowledge for future academic or professional activities. They valued the chance to deal with students and universities abroad and enjoyed *learning from foreigner peers (IA3)*.
- *Interest in New Experience:* The value of this course for the interviewees was in the totally new experience it offered them for the first time. This included: getting to know *new people*

and cultures (II1), benefiting form *new teaching/learning methods (II2)*, trying *new use of technology for learning (II3)*, and practicing *new communication methods (II4)*.

- *Personal Perception:* All interviewed Jordanian students reported a very *high satisfaction (IP1)* with the Virtual Collaboration Learning experience and stated their intention to attend and recommend similar courses to their friends if offered again in Jordan. The novelty of the experience caused them an *initial anxiety and confusion (IP2)* at the beginning of the course, but also stimulated a *high intrinsic motivation (IP3)* that allowed them to experience a *high enjoyment (IP4)* during the course. The obligatory participation and the final grades seemed play a *low extrinsic motivation (IP5)* role.
- *Learning Preferences:* Jordanian students noticed the limitations in communication and coordination in a Virtual Collaborative Learning setting and recommended to complement the virtual collaboration phase with face-to-face exchange to address their preference of *presence and Blended Learning (IL1)* scenarios.

5. CONCLUSIONS AND FUTURE RESEARCH

To explore Jordanian students' perception of Virtual Collaborative Learning as a modern approach to gather international academic experience without travelling abroad, eleven Jordanian students attended an international Virtual Collaborative Learning course at the Technische Universität Dresden in Germany. A qualitative evaluation of their experience was conducted through in-depth interviews with seven of the participants after the course. A set of thirty self-reported factors was identified and categorized in: contextual factors, design factors, and individual factors that affect students' perception of the Virtual Collaborative Learning experience.

The identified contextual factors provide an evidence of challenges facing the introduction of Virtual Collaborative Learning on a regular basis in a developing context (Tawileh et al., 2013). It is recommended to grant Jordanian students an access to a computer laboratory with high-speed Internet connection at their local university if possible to allow effective use of synchronous communication tools like video conferencing applications. Another issue to consider is the probable unfamiliarity of students and instructors with new learning and teaching methods and technologies. This may require continuous supervision and guidance by the course organizers.

Virtual Collaborative Learning follows a project-based learning approach that requires intensive work and constant active engagement of students' efforts throughout the course (Blumenfeld et al., 1991). This can be quite challenging, but also stimulating at the same time for students used to classical learning methods. Jordanian students may need extensive preparation and detailed information on the required workload and the importance of serious participation and peers support for a functional group work. A technical design aspect to enhance Jordanian students' Virtual Collaborative Learning experience is to select appropriate collaborative tools that work in the developing context. Open Source Software offer configurable, cost-effective, and provider-independent solutions for educational purposes and avoid licensing, accessibility, data protection and privacy limitations.

Like in all learner-centered scenarios, successful participation in Virtual Collaborative Learning courses depends on learners' personal motivation and interest. Before their first participation, Jordanian students should be informed about the benefits they can gain, like knowing new people and cultures, getting prepared for the modern professional life, and getting exposed to new learning and communication methods and applications. It is important to clarify the goal and procedure of the course to avoid confusion and anxiety and stimulate students' intrinsic motivation. In addition to integrating the Virtual Collaborative Learning project in a regular graded course in the local study program and preparing local instructors for active scaffolding and support as an extrinsic motivation factors, implementing gasification elements in the learning environment may increase the intrinsic motivation of Jordanian postgraduate students. The ill-structured problem of the case study should include challenging tasks and emphasize the interdependence between students to facilitate social interaction and informal exchange for a better cross-cultural communication.

The results of this study reflect the subjective perception of the seven interviewed Jordanian students and may not be generalizable for all students in their country. As their voluntary participation in the evaluation interviews could be motivated by their satisfaction with the course, the reported perception may be biased by a positive attitude. An evaluation from the perspective of unsatisfied students can

deliver further enhancement recommendations but was not possible in this course as no unsatisfied students could be identified.

The high potential of Virtual Collaborative Learning to involve students from developing countries in well-designed international virtual social learning environments based on affordable technology of collaborative Social Media can be concluded from this empirical study. Enhancement recommendations proposed by the Jordanian participants and extracted from the factors affected their experience will be implemented and evaluated in upcoming courses to effectively provide students in developing countries with international experience without the need to travel abroad.

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