ISBN: 978-989-8704-55-9 © 2024

DESIGN PATTERNS FOR MOBILE LEARNING IN DIGITAL MULTICULTURAL ACADEMIC COURSES

Liat Eyal[1, 2*] and Talia Traister[3*]
[1]*Levinsky-Wingate Academic Center, Shoshana Persits St 15, Tel Aviv-Yafo, Israel*
[2]*MOFET R&D Institute, Shoshana Persits St 15, Tel Aviv-Yafo, Israel*
[3]*Ono Academic College, Pinsker 18a Herzeliya, Israel*
[*]*Ph.D*

ABSTRACT

Multicultural classes in academia present challenges, intensified further in the context of online learning. Addressing these disparities requires innovative solutions to the challenges stemming from the diverse cultural backgrounds, religious affiliations, age disparities, varying learning skills, and differences in technology access.
This study employs Design-Based Research (DBR) methodology to tackle these challenges. Through iterative processes involving expert collaboration, several Design Patterns (DPs) were identified and refined. All design patterns revolve around digital and visual literacy. The study's findings indicate that implementing various Design Patterns in a multicultural class using mobile learning and a shared visual language can be highly effective.
These Design Patterns foster a common vocabulary, and cultivate essential learning skills to bridge existing gaps, they facilitate recognition of the learning space and interactions between the students. This paper presents four design patterns that serve as the didactic foundation for designing visual academic learning using smartphones: 'The Power of Selfies' – Leveraging selfies for active learning; 'Album Anchored Theory' – Utilizing personal picture repositories to grasp abstract theoretical models ; 'Between Image and Word' – Utilizing metaphors to enhance vocabulary; 'Research in a "Physital" Environment' – Collaborative learning without textual overload in an intriguing virtual setting.
These patterns offer the basis to structure multicultural online lessons effectively.

KEYWORDS

Multicultural Classes, Visual Literacy, Mobile Learning, Design-Based Research (DBR), Design Patterns (DPs)

1. INTRODUCTION

Academia is a multicultural environment. Each culture identified by a unique set of symbolic tools that are internalized, consequently leading to diverse cognitive behaviors. These cultural attributes further compound the inherent complexities within digital platform learning processes. The challenges stem from language barriers, variations in learning aptitudes, deficiencies in self-organizational skills, digital illiteracy, disparities in learning perceptions, and ability to articulate personal and critical viewpoints (Eyal & Gil, 2020).

Additionally, there are technical challenges such as internet accessibility and the availability of sufficient computers, particularly when all family members are mandated to engage in remote learning, as witnessed during the Covid-19 pandemic.

To bridge both cultural and technical gaps, Visual Literacy using mobile phones was chosen. Mobile Learning created a platform for active and collaborative learning. In parallel, an active WhatsApp group complemented the learning process, providing quick access to support and material, fostered a sense of belonging, enhanced motivation, and nurtured a feeling of capability.

2. GOALS

This study aims to conceptualize the cumulative knowledge acquired through multicultural groups during their academic courses. The courses employed Visual Language within a dialogue-driven, active, and collaborative

Mobile Learning environment. The repetitive nature of the design-based research (DBR) enabled successful creation and distribution of the best practices using the design patterns.

3. METHODOLOGY

Design-based research (DBR) was chosen for this study. It represents a research approach tailored for analyzing teaching practices within the learning environments. It endeavors to enhance teaching through a cyclical process of design, implement, evaluate, improve, test, iterated until optimal levels are achieved. DBR facilitates the development of effective practices and their distribution through the utilization of Design Patterns.

Such Design-based Research was undertaken within expansive multicultural academic online courses. The cultural differences spanned many areas such as religion, language, learning capabilities, technological access, efficacy, motivation for learning, and other factors.

Various instructors taught each unit across multiple courses, with class sizes ranging from 50 to 100 students. Feedback was collected from students, instructors, and expert groups. This feedback, coupled with insights gathered from the WhatsApp groups that accompanied each class, contributed to refining and enhancing the course material before its next iteration.

By employing this iterative process of design, implement, evaluate, improve, and test, four distinct Design Patterns (DPs) were extracted and applied to structure the accumulated knowledge. These patterns articulate actionable methods and expertise intended for reuse across diverse contexts as well as aid trainees. It includes didactive organization of units, each one can include any content in different ways (Eyal & Gil, 2020).

4. KEY FINDINGS

Each design pattern template centers around a distinct challenge, offering its contextual background, the specific challenge it poses, and the research's focal question. It further presents a solution, delineates the activity steps at the student level, acknowledges solution limitations, and provides recommendations for instructors' assimilation. This paper exclusively focuses on the questions (Q) and solutions (S) sections within the framework of the four design patterns, the remaining elements will be elaborated during presentation.

The power of selfie

Q: How can passive learners, particularly those hesitant to speak in a large group, be encouraged to become active participants?

S: A collective exhibition showcasing student-created selfies serves as a foundation for group analysis. Each selfie symbolizes a concept or idea, complemented by a verbal explanation.

Utilizing a picture album for model representation

Q: How can an abstract theoretical model be transformed into an accessible learning tool?

S: Students leverage their existing mobile photo libraries to select images that symbolize elements of the theoretical model. Working in pairs, they engage in a comparative process, matching photos to represent different facets of the model. Subsequently, students present their interpretations within a shared environment for group analysis.

Between image and word

Q: How to bridge the linguistic gap between students and build a shared vocabulary?

S: Utilizing visual metaphors such as photographs, images, sketches, and more to introduce concepts, ideas, or processes. Decoding these visual representations initiates dialogue, establishes a shared vocabulary, and clarifies messages collaboratively.

Collaborative learning through research in a “physital” environment

Q: How to cope with deficient learning skills without over textualization?

S: Transition the research activities into a “physital” environment that simulates physical reality in a virtual way. The environment incorporates additional learning scaffolding that open on demand.

5. DISCUSSION AND CONCLUSIONS

To navigate complex multicultural classrooms, we embraced a Visual Language utilizing mobile phones as a teaching tool in workshop-style academic courses.

The symbols of the visual language and their combinations are linked with society, culture, time, and space that influence how the material is absorbed and understood (Peshat, 2021). The transition to distance learning does not automatically make learning multicultural (Jørgensen et al. 2020). The multicultural approach aspires to promote learning while honoring diversion. It enforces exposure to other cultures while committing all its participants to contribute to the learning process (Paul-Binyamin & Reingold, 2020). Teaching and learning using visual tools, especially ones created and interpreted by students, enables them to find common grounds. This promotes trust and respect between group members. The ability to express themselves visually in familiar surroundings encourages dialog and a deeper understanding of the experiences of the rest of the group (Yenawine, 2013). Sharing personal stories that are hidden behind the visual gives a positive experience, enhances self-esteem, and gives a feeling of capability – all of which motivate learning and academic success (Paul-Binyamin, Reingold, 2020).

The study shows that making use of Mobile Learning with visual approach, ignites excitement, curiosity, and motivation among students. Leveraging the camera and authentic photographs fosters a connection to the students' world, promoting increased engagement.

Our approach aims to uncover meaning and interpret text by deconstructing, verbalizing, and promoting awareness of reading and thinking processes. Employing Visual Thinking Strategy (VTS) encourages observation, theorization, and evidence-based reasoning, supporting robust thinking and learning (Yenawine, 2013). Utilizing artifacts: student-created representations, sketches, and artwork - break language barriers, fostering dialogue that enriches vocabulary and promotes active, collaborative learning. Transitioning learning into a visual virtual environment facilitates additional explanations, serving as scaffolding to support students with learning gaps, enabling them to catch up, achieve success, and bolster their sense of accomplishment.

The WhatsApp group played a pivotal role in fostering a sense of belonging and accomplishment, enabling immediate resolution of challenges, discussions, and real-time adjustments of teaching, ensuring up-to-date information tailored to current needs. Furthermore, the use of visual language fosters an environment of relative equality among students, requiring all, regardless of background, to acquire new tools and skills.

REFERENCES

Ben Peshat, M. (2021). The Field of Visaul Literacy: Local Insights into Theory, Practice and Interpretation, Mofet institute.

Eyal, L., & Gil, E. (2020). Design patterns for teaching in academic settings in future learning spaces. *British Journal of Educational Technology, 51(4),* 1061-1077.

Jørgensen, M., Mason, A., Pedersen, R., & Harrison, R. (2020). The transformative learning potential in the hybrid space between technology and intercultural encounters. *Journal of Studies in International Education, 26(3),* 318–333. ISSN 1028-3153.

Paul-Binyamin, I., Reingold, R., Editors (2020). Shared Spaces in the Education System and Academia, Beit Berl College and Mofet Institute (Hebrew).

Yenawine, P. (2013). *Visual thinking strategies: Using art to deepen learning across school disciplines*. Harvard Education Press.