The Jigsaw Project for Digital Skills Acquisition in a Diverse Student Environment

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Abstract
Otis College of Art and Design prepares a highly diverse community of learners/practitioners involved in effective and changemaking participation in the creative economy. As such, attention is crucial on a pedagogical level to consider current issues in the creative industries such as diversity and inclusion. At the same time, cultural and educational needs on campus integrate throughout the curricular fabric at Otis. Recent successes in popular culture such as the film “Black Panther” prove that the public has a hunger for more diverse content. In order for high quality, nuanced, diverse content to develop and flourish, diversity and inclusion must be present at the highest decision-making levels in creative divisions within corporations, studios and with independent content creators. This is where Otis College, an incubator for future content creators, is in a position to be a change agent, to develop culturally relevant and responsive curricula. As an instructor/practitioner, this is a fascinating time to address diversity in a higher education arts curriculum on a pedagogical level. Consideration of the mixture of a multicultural and an international student body presents opportunities to foster a sense of belonging while celebrating prior learning and accomplishments. In prior interviews with students, two salient areas came to the surface that helped to inform methodologies to be considered: the importance of exposure to students from other countries and perspectives thereby extending opportunities for critical thinking/ideation, and the desire to be recognized for prior learning. After consulting research on multicultural and international diversity issues and methods in higher education settings, a cooperative learning project was created aligned with social interdependence theory: The Jigsaw Project to showcase digital art skills. Students placed themselves into four select groups based on interest. These groups studied and applied learnings in four core competency areas needed for success in an internship. Included in the project was a lesson in Z-Brush, a software application highly prized by the students, given by a guest speaker from a diverse background and an experienced teacher at the high school and college level. The students met with their chosen groups outside of class and presented their findings material in class. This material was then shared along with teacher content to study from to prepare for a final exam that would be similar to a skills test given at an entry level design job interview. The project activated prior learning, was student selected and project based, and allowed for alternative methods of distribution and expression. The results were published on the course e-portfolio.

Keywords: Cooperative learning, social interdependence theory, diversity, curriculum, multicultural, International students, academic subculture, cultural hybridization perspective, culturally responsive curricula, Photoshop, Instagram, Z-Brush, procreate, jigsaw project, Toy Design, assessment, e-portfolio

Introduction
There are many aspects of diversity in an Otis College classroom. I teach in the Toy Design department at Otis College. There are only two degree granting programs in Toy
Design in the country, Otis and FIT. This tends to attract diverse students with regards to
nationality, ethnic and prior educational background. Within any given class I can have 8-
10 languages being spoken, multiple gender identifications, ethnicities, nationalities,
learning challenges and styles. In a creative environment like Otis, the output is a
reflection of this diversity with students encouraged to explore and dig deep into areas
that are meaningful to them. A project could be done to address any one of these diverse
areas but would be beyond the scope of this study. Since my area of expertise is with
international students and I have an increased number of students with multicultural
backgrounds, I was interested in solutions to help these two types of diverse students with
differing needs to have the optimum art school experience and to prepare them to take
their place as an influencer within the creative economy. Since I did my graduate work in
education at USC, known for innovations in urban education and diversity, I thought that
was a pertinent place to start to help frame the research on diversity and inclusion and
start a literature review. Shaun R. Harper, the newly appointed executive director for the
USC Race and Equity Center (A think tank addressing issue of equity across disciplines)
brought up important points of positive aspects of Historical Black Colleges that have
implications for multicultural students as well as suggestions for institutions to
incorporate more culturally responsive curricula (Gordon, 2018). Lichan Xu of Thompson
Rivers University in British Columbia, Canada outlined the reasons for international
interest in a western style education and outlined challenges experienced by international
students coming to the U. S. and Canada: Culture shock and learning shock, which would
be helped through an “internationalization” of the curriculum (Xu, 2015). I looked at
Johnson and Johnson’s Theoretical Approaches to Cooperative Learning to provide me
with a strong theoretical foundation for the project I was considering (Johnson & Johnson,
2015). Henry Jenkins’ white paper Confronting the challenges of participatory culture:
Media education for the 21st century has helped form my pedagogical choices since my
time as a graduate student at USC and is still relevant today. And finally, Jian Li’s *A Cultural Hybridization Perspective: Emerging Academic Subculture among International Students from East Asia* presented a differing perspective but one I often see on campus, meriting its consideration (Li, 2016).

**Literature Review**

Larry Gordon’s article for EdSource *Racial Minorities Feel like Outsiders at Some Colleges, USC Diversity Expert Says* (2018) details a survey that diversity expert, Dr. Shaun Cooper plans to implement across disciplines on the USC campus and beyond. While many institutions have made substantial efforts to recruit and admit students from diverse backgrounds, the student body on campus may not have experience interacting with diverse student groups. The plan for the survey was to get a reading on diversity preparedness. Dr. Cooper stated that minorities tend to feel like outsiders on campus if they walk into a classroom and not many resemble the student and if the instructors do not validate or value the student’s cultural history and past experience. He pointed to Historical Black Colleges and the fact that there are high expectations: that one is not there because of athletics or affirmative action, but because the student is intelligent and wants to invest in the pursuit of knowledge and excellence. The idea of taking this perspective of high expectations that set me on the direction to design a project for the class. Dr. Cooper went on to suggest that colleges in general with the desire for a more diverse and inclusive curriculum offer culturally relevant and responsive curricula (Gordon, 2018). Lichan Xu described in detail the transitional challenges that international students face as well as suggestions for instructors that would lead to successful inclusion in their classrooms. Xu discussed both culture shock and learning shock and also informed on the rationale behind the desire for international students to study in countries such as Canada or the U.S. A Western degree is highly prized and can
lead to higher paying jobs. The North American institutions are interested in International student both for the funding it provides the institution and for the diverse and unique contributions the students make to the university in terms of varied perspectives and experience. In terms of culture shock, students may encounter prejudice, language issues, trouble with accommodations and food, and most of all, loneliness. Academic issues are a dissonance about the academic experience and inability to engage in social interactions with other students. Students from parts of the world where education is exam-based may find the transition to a more student-centered project-based environment a challenge, but once adapted, many truly enjoy it. Xu suggests pedagogical solutions that allow students to value their culture, but to also better understand the dominant culture they will need to know how to navigate in order to be successful. Xu also suggests “internationalizing” the curriculum which would benefit both domestic and international students through the learning of global perspectives. One method Xu presented which influenced me was Learning about Learning based on the theoretical foundation of Henry Giroux. It involves a border crossing metaphor to showcase complexities in learning in diverse settings (Xu, 2015). Johnson and Johnson’s Theoretical Approaches to Cooperative Learning included a detailed theoretical explanation of social interdependence theory which gave my project the visualization of a jigsaw puzzle: each separate areas of expertise but the inclusion of all to facilitate deep learning (2016). While I had seen the jigsaw technique used successfully in language learning and acquisition, I wanted to find research to support my idea of using the technique for my classes. Toy Design is a specialized product design discipline that includes in depth knowledge of child development and play patterns as well as applied technology and sciences. Karacop and Diken’s study The Effects of Jigsaw Technique Based on Cooperative Learning on Prospective Science Teachers’ science process skill published last year in the Journal of Education and Practice detailed the effects of the technique for science students and I felt I had found parallels. A laboratory
approach mentioned in the article is based on active participation of learners in data
collection and analysis, gaining problem solving skills leading to positive attitudes about
learning. Next, applying this knowledge and reporting back completes the cycle. These
are processes my students also go through, and since the Jigsaw technique was found to
be successful in this area, it helped to justify my direction (Karacop & Diken, 2017).

Jenkins’ white paper *Confronting the challenges of participatory culture: Media
education for the 21st century* buttressed the goals of the project along with theory,
because learning needs to be relevant within the student context and participation is a key
element of that (Jenkins, 2006). Finally, Jian Li’s *A Cultural Hybridization Perspective:
Emerging Academic Subculture among International Students from East Asia* gave me
insight into a trend I do see on campus of an academic grouping among some
international students that, while it may not include the instructor, can and did in this case
have positive results (Li, 2016). All of this literature bolstered my ideas, but I still wanted
to find evidence of this method working in diverse learning communities, and more
importantly, for the effect to have positive outcomes on how students were feeling in class
and their comfort levels. Ellion Aronson, professor emeritus at UC Santa Cruz, developed
the method, *The Jigsaw Classroom*, as a research exercise in the 70’s at University of
Texas and the University of California. It is a cooperative learning technique that has
reduced racial conflict, promoted better learning outcomes, improved student motivation
and increased enjoyment throughout the learning process (Aronson, retrieved, 5/25/18).

**Methodology**

The methodology was qualitative in nature. While I tested the method one semester prior
with success based on student feedback, Spring 2018 semester was when the project took
place. I had two sections that participated across sections, meaning they worked as a
group outside of class. The combined sections comprised of 18 students: of the
international students, 4 were Mandarin speaking, from both Taiwan and China and 4 were Korean. In addition, 7 of the non-international students were students of color. The end result was a group lesson given to the class which became material for the final exam. In designing the project to promote diversity and inclusion, my underlying foundation was the social interdependent theory. From there I gleaned from TESOL instruction at USC which made regular use of the jigsaw project. The beauty of the jigsaw project is that it can be a short duration, 5 minutes or several weeks. I had seen this method used in class with a great deal of success. At the graduate level there is a large amount of reading and terminology to digest, and jigsaw projects help to learn a lot of information in a short period of time. The course I was teaching prepared students for internship fair by creating a resume, promotional sample sheet, website and physical portfolio to show potential employers. This takes ¾ of the class sessions. Once students have completed internship fair, I instruct on skillsets important for success in their respective internships. This part of the course was a natural area for a project such as this. Students were asked to select one area of interest: rendering, repeat patterns, z-brush and natural backgrounds and effects. Since students were choosing based on interest, the hope was that they would collaborate with different people than those they usually interact with. I put content related to the four topics on to the e-portfolio to get them started and then the groups met outside of class to learn on their own, become experts in that one area, and then present their findings in a lesson to the class that was recorded and uploaded to the e-portfolio. From there, the students all had material that had been presented, but they could also go over at a later time to help them with a take home final very similar to a skills test given during many entry level interviews in the toy industry. The method and distribution of the content was up to each group. I was available for any clarification needed.

Results
The evidence can be found at:

http://ospace.otis.edu/Toy_Portfolio_Dev_2018/Photoshop_workshop

The results demonstrated an immense level of diversity and enthusiasm. I was impressed by the engagement of all students in the process and how they were willing to challenge themselves in areas outside their comfort zones, especially in the case of Z-brush which no one was familiar with prior to this class. Z-brush is a digital sculpting program used frequently in the entertainment industry and something of interest for toy design students. As the research suggested, some students formed an academic subculture. There was a group of female students, all Mandarin speaking who worked together on natural backgrounds and effects. They were a powerhouse in terms of their presentation and completely thorough in terms of their learning supplied material and then presenting it to the class. They were slightly weaker than other students in presenting new material, but I was impressed by the strong cohesion the group had, not one student fell behind. Another addition that is important to the narrative is that the class did not all place into an internship because of the number of international students and the inability of employers to hire them. This did not phase these students. Just as they powered through their project, they quickly found their own fascinating internships this summer in China. I look forward to learning about things turned out. This was resiliency in action. Two very creative responses to the project came from groups that had both international and domestic students who were also ethnic minorities. One group studied rendering and gave a demonstration in class, but at the same time started personal work related to the skill on Instagram, beautiful renders of multicultural models. They can be viewed at:

https://www.instagram.com/niambi_allah

As an instructor, I encouraged exploration of diverse methods of distribution and posting of work from class. What Niambi did with her renders is reminiscent of reactions I have seen from the movie Black Panther where people are not waiting for dolls to be made,
they are “kitbashing” and creating their own. A mother/daughter team with a youtube channel created their own Shuri doll which is stunning in its details and documented the process: https://hypekids.com/2018/3/black-panther-shuri-custom-doll-how-to-video

The other group did a time lapse video of the process of digitally painting and rendering over a black and white drawing. Beginning digital artists sometimes find a disconnect with this process, so the students’ use of time lapse along with links to instructional videos was extremely helpful to the class. The Z-Brush group had several parts to it. There was a guest speaker who instructed them in Z-Brush. Then, sometimes things are better when they are unplanned, one student had to leave early to go home to Korea, so she needed to quickly digest what was being learned for the first time and demonstrate it to the class. She also had to do a lot of self-study quickly. What ensued was an enthusiastic, fact filled demonstration in English, her third language to the class that fully demonstrated mastery of the level of Z-Brush she had been taught. The other students in the group presented later, they were more individual in nature than the other groups but equally effective. Finally, the group that specialized in repeat patterns gave a lively demonstration in both photoshop and illustrator with commentary on why one program was superior to the other for this application, just what a teacher wants, critical thinking!

**Discussion**

I was pleased that I chose this particular class to test this project. There had been a substitute one evening that both sections found offensive and wanted to discuss with me. It did come as a surprise in that I had the guest come for four years and had never had issues. But I also have not had quite the multicultural component to the class that I did this time. What was fascinating throughout our discussion is that I could see a blending of multicultural groups with international groups that I had only seen previously in the class from 2010 which was also a diverse group. The multicultural students were talking about comments they felt were insensitive and were also giving words to go with feelings the
international students had but had not yet articulated, a consciousness if you will. While at times the conversation was not comfortable, I felt it had to be talked about and was effective. One multicultural student remarked when I came back with the fact that as designers, one has to be prepared to deal with people who don’t like ones work or don’t think the same way that as a person of color, they deal with that reality every day. Very true and something as a teacher to keep in mind. I do feel that this project served several goals: to learn a lot of practical material quickly, to interact with people of a different background from you with a common goal, and to have the freedom to celebrate prior knowledge as well as discover and forge new avenues of distribution for one’s creative direction. The pressure of being in front of class and teaching something instead of watching the teacher instruct seemed invigorating to the students and the fact that they chose the area of expertise and their own way to present gave them the freedom to be able to enjoy it. There was no issue with the work not being done completely or on time. All students participated well in the project. I recommend trying this method and plan to use it again in future classes, perhaps extending it to hybrid and online classes to see if the technology can enhance the experience.

Conclusion
The jigsaw project fulfilled a pragmatic goal, to learn skills and also brought together students in a way to internationalize and make a more multicultural and inclusive learning experience. One concrete illustration of this happened last semester when I practiced the technique before formally implementing it. There were two international students, one from Mexico and one from Korea. After the project, the two students made plans to go to Mexico for winter break. The Korean student had never been to Mexico and the Mexican student generously offered to show her around and have her spend time with her family. When I saw the student after the trip, she was beaming and told me how much she loved the experience of visiting Mexico. International students badly need experiences like this
here in the United States where they can see how holidays are spent, afternoons, what family time is like. These may sound like small details, but they go a long way toward the student feeling connected to the school, the program, the career, and the reason for making the trip here to study in the first place.

References


American experience. Journal of International Students, 6(2), 527


