Poster Projects in Economics Classroom: Stimulating Active Learning and Creativity¹

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Abstract

This paper introduces an original and creative group project that can be employed in many economics courses. The project consists of preparing a poster with visual information on an assigned topic. The paper describes in detail pros and cons of such projects in comparison with other active and cooperative learning strategies. The paper presents one example of such project, implemented in undergraduate upper-level Development Economics course, along with an analysis of students’ evaluations of the project. It concludes with a list of ideas for poster projects for a variety of other economics courses.

Key Words: economics education; active learning; cooperative learning; group projects

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1. Introduction

“One picture is worth a thousand words” is a common notion on the benefits of a visual image. During their college years students are frequently required to write papers on a variety of subjects but are rarely, if ever, have an opportunity to prepare a visual presentation of their learning outcome. This paper describes a novel active learning strategy of a poster project, which is a format to display visually appealing information representing student’s independent work. I argue that such projects can contribute to increased learning, creativity, collaboration and satisfaction of students taking undergraduate economics courses.

Active learning strategies have received significant attention in recent economics education literature (see Rhoads, 2012, for a brief survey). Most existing research indicates that active and cooperative learning enhances student’s experience, improves learning and leads to better retention of information. McGoldrick et al. (2011) argue that “well-constructed cooperative learning exercises have been demonstrated to be more effective than individual learning and, by appealing to a broader set of students, have the potential to increase diversity within the economics major.” However, recent surveys demonstrate that “cooperative learning methods were rarely used in most types of (economics) courses” and that “chalk and talk” remains the dominant teaching style (Watts and Becker, 2008, and Watts and Schaur, 2011). Colander and McGoldrick (2010) among others call for a shift from current dominant instructor-centered lecture teaching methods to more active pedagogic practices.

Inertia and opportunity costs of learning new teaching methods are the main reasons for a slow change to more student-centered active learning strategies. Another potential reason for low use of cooperative learning methods is lack of awareness among economics faculty of a variety of different forms the cooperative learning could take. Most commonly used forms of cooperative learning involve some form of a discussion (McGoldrick et al, 2011). However, cooperative learning can take a much wider variety of forms that bring more aliveness to economics education. This paper introduces one innovative and uncommon cooperative learning method via poster projects.

The poster project is an active learning strategy which requires students to do independent research on a subject related to class material, select the most important ideas and information and present their findings in a way of a poster board, which presents a visually appealing record of their work.

Poster projects can be performed on a wide variety of topics. In many cases a paper assignment can be replaced with a poster project assignment to add variety to active learning strategies employed in economics education. Relative to writing a paper on a subject, completing a poster project requires students to develop their capacity for visual representation of the key ideas and to actively practice “replacing a thousand words with one picture”. This is an important skill that will benefit students not only in their study of Economics, but will serve them in many other areas of study and their future careers. As we discuss below, many students find this novel approach to the “term paper” to be a meaningful experience, as reflected in their evaluations.

The rest of the paper is organized as follows. Section 2 presents a general description of poster projects. Section 3 discusses the pros and cons of poster projects relative to other active and cooperative learning strategies. Section 4 presents an example of a poster project implemented in an intermediate Development Economics course. Section 5 presents analysis of student’s evaluations of the project. Section 6 offers poster project ideas for other economics courses and Section 7 concludes.

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3 For example, Maier et al. (2012) state: “Adopting new teaching methods is a costly process. It takes time to learn about new pedagogies, adjust teaching practices, and prepare activities and assessments that are consistent with the new practices. These marginal costs are real and up-front and take away from alternative activities such as research. Thus, for many instructors, the odds are stacked against pedagogic change.”
2. General description of poster projects

Poster projects can be prepared on a variety of economics topics. The outcome of the project is a poster board that serves as a report on a given topic. The poster can include basic theory and empirical evidence, in a visually appealing form. The theory section can be represented by equations, graphs, diagrams, drawings, cartoons and bullet point lists. Empirical evidence can be represented by graphs, charts, tables, pictures, maps, drawings, and bullet point lists.

The preparation of the project would usually take place outside of the classroom. This project can replace other types of take-home assignments, such as a homework or a term paper assignment. It could take several days, or more likely several weeks during the semester. At the project completion students can bring their posters to class and share with others.

Poster projects could be done either individually or in small groups. The group size would depend on a size of the class and the judgment of the instructor. For example, group size can range between 2-6 students. There are different advantages and disadvantages of working in groups vs. individually as we discuss in the next section. Whether done individually or in groups, the poster project will stimulate active learning as students need to actively research and analyze the material to be presented on the board.

If working in groups, students need to decide among themselves how to allocate each segment of the project to each student to research on and prepare their own visuals. Students should be encouraged to share the sources and the materials they find and update their group members of their progress during the course of the assignment. At a later date students will gather with their prepared material and then the group jointly decides which of the items go on board, how to arrange the material, and any headlines and other text to include. Since the board space is limited, the group has to be selective in choosing the most important and most visually appealing pieces of evidence to post on the board.

The format and size of the poster can be specified by the instructor and, optionally, blank poster boards or large size paper could be distributed by the instructor at the project initiation. Students may also be allowed to create their own boards in any form or shape they choose, which can further stimulate their creativity and engagement with the assignment.

The instructor should offer a list of the types of material that can be included on the board. For examples of the types of material used in one project see Appendix A1 and discussion in section 4. Optionally, the instructor could also present examples of several types of material that can be used and open a discussion of what makes the most visually appealing presentation. For example, at the introduction of the project an example of a well-made chart and an example of an ineffective chart could be shown to the class. The discussion can be initiated by asking students to name some properties of the well-made chart and properties of the ineffective chart. Thus, students will learn for themselves how important is the formatting and what types of material make the best visual impression. For example, an effective chart will be clearly labeled, with the right font and the right size for the size of the poster board. It will be visible from the distance that the final projects will be viewed. An effective chart should convey the main point without any additional explanation. An ineffective chart will lack some or all of these elements.

The instructor should also offer a list of sources of where students can find required information. The sources can be included in the project description document, on the syllabus, or given in class. Ideally, students should not be limited to the sources given by the instructor to stimulate their own research and creativity. Optionally, the students could be required to prepare a list of the sources they used for the final project and it can be posted on the back of the poster board.

The original and uncommon nature of such projects stimulates creativity among the students and instructors alike. Many instructors will appreciate the opportunity to create something new and original and this project presents many such opportunities during the design and implementation of the
project. Even the title of the project can be catchy and creative to support the atmosphere of originality from the start. For example, I call one of the poster projects I implement in the upper level Development Economics class the “Country Carnival.” Another project I use in the Financial Markets and Institutions class is called “Wall Street Investing.”

At the completion of the poster project a viewing and discussion session can be held in which each group views, discusses and, optionally, evaluates other’s work. During this session, posters can be displayed around the classroom (masking tape is a useful supply to facilitate this display). Several options for viewing can be used, ranging from informal mingling during which students view other posters in their own pace and, optionally, fill out a survey or a scorecard on each poster, to more structured viewing when the whole class is viewing the same poster. Optionally, students may be asked to make a short presentation covering the key ideas shown on the poster and/or answer questions about their poster. Other students may be asked to comment on the key features of the poster. Instructor may facilitate this with questions like: “What do you notice?”, “What are the key points represented on the poster?”; “What are the most effective elements of the poster?” and the like.

Optionally, other interesting elements could be added to the viewing session. For example, the students could be asked to participate in a “knowledge hunt” (aka “treasure hunt”) in which they are required to find specific pieces of information from each poster. Each group could be required to send ahead of time one or two specific questions the answers to which will be found on their poster. For example, the questions could be about specific data reflected on the poster, or other relevant pieces of information. The instructor will compile such questions on the questionnaire and distribute it to students in the beginning of the “knowledge hunt” which can be completed individually or in groups.

Peer evaluation can be another optional component of this project since students can better learn what works best in the posters by critically evaluating each other’s work. Optionally, rubrics for peer evaluations can be brain-stormed and co-designed by class participants with instructor’s facilitation. When students play an active role in selecting criteria for evaluating their own work, they have more incentives to do their best. In addition, giving students a say in how their work will be evaluated keeps them engaged and improves the overall experience of the class.

3. Costs and benefits of poster projects vs. alternative approaches

Poster projects can be done by individual students or by groups of students. As an individual project, a poster project can replace a written paper or a homework assignment. As a group project, poster projects can replace other group assignments, such as group case studies, group papers or group presentations. Many of the benefits of the poster projects do not depend on whether the project is done in groups or individually. Both formats are examples of active learning strategies, while working in groups brings additional benefits of cooperative learning, which has shown to have many benefits (see McGoldrick et al., 2011). Below I first discuss the costs and benefits of poster projects in general (i.e. whether completed individually or in groups) and compare them to other types of assignments and later I discuss pros and cons of group vs. individual formats.

3.1 General considerations

One of the main benefits of the poster project is the active learning approach, since students are required to do their own research on the assigned or chosen topic and present their findings in a poster board format. Alternative approaches, such as a research paper assignment or research-based group or individual presentations, in-class discussions, or problem-solving may have similar benefits in terms of offering active learning opportunities. Economic experiments are another form of active learning in economics classroom and they offer significant improvements in students’ learning
outcomes. However, there are many areas of economics that are not suitable to experiments (i.e. health, development, macroeconomics, forecasting, etc). Virtually all of these areas could be used for a poster project, which simply is a visually based report on any given topic. In addition, compared to the cost of running an experiment, which often include specialized computer equipment and sometimes extensive pre-class set up, the cost of the poster project are minimal. The costs may include some basic supplies (i.e. poster boards) and the instructor’s time for designing the project and giving students instructions, which is not significantly different that the time spent on giving students a paper assignment. In addition, the projects are largely done outside of the classroom, while the experiments are largely done in-class. Thus, poster projects are more directly comparable to other take-home assignments, which students complete outside of the class time. However, they also have an interesting in-class component when the posters are displayed and discussed in class.

Another benefit is the novelty and variety factor of this project, which is likely to make students more engaged in the class and increase their interest in the subject. Students seem to really appreciate the new format offered by this project (e.g. one commented: “I actually liked that we created a poster, a physical accomplishment reflecting the research in a way that is appealing”). They like the change of pace from the regular class and variety element this project provides. For example, some students commented: “The poster boards as well as the change in routine and pace for class made this enjoyable.” (See detailed comments in Appendix A3). Experiments and other active learning strategies, such as in-class debates, also offer novelty and variety benefits.

Another potential benefit is the creativity aspect as students are allowed an opportunity to be original in designing their posters, choosing what type of information to present and how to present it. While many other learning strategies also encourage creativity (e.g. writing a paper or preparing a presentation), many students appreciate the hands-on nature and the visual appeal of this project. For example, some students commented: “I enjoyed creating the graphic art,” “Hands on nature of making poster. Talking about Econ Data in a more visual way”, “Creative aspect was fun!” (See more detailed comments in Appendix A3). While a research based paper may offer similar benefits in terms of creativity, the visual aspect of this project clearly appeals to some students. For example some of them comment: “I do prefer doing a project visually versus writing a paper”, “Making it more ‘visuable’ rather than filling it with words”, “I learned how to make a visual project.” But some students do prefer a more standard paper format, they seem to be in a minority (see Section 5 below for project evaluations).

The poster projects are likely to be especially beneficial to students with more visual learning style. Informal survey of students in my classes and colleagues in my department suggests that students are very often required to write papers, and fairly often are required to present orally, but rarely if ever are asked to prepare their report in a visual form. Making a poster allows students an opportunity to literally and figuratively add some color to their study of economics. For example, some students in my Country Carnival project have used the colors of the country’s flag as a background to their charts, others attached country-specific symbols to their posters (e.g. prayer flags representing the country of Nepal), and one team have shaped their poster in the form of the pirate ship to represent one of the key issues Somalia faces (See Figure 1).

Another useful benefit of the poster projects is that students learn skills of visual presentation not only through the process of designing their own poster board, but also by viewing and critically evaluating their peer’s work. Students also learn about a wide variety of chart forms that can be created.

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4 For example, Ball, Eckel and Rojas (2006) find that students in large classes with classroom experiments earn final exam grades that average over 7 points more on a final exam compared with a control group. However, Watts and Schaur (2011) find that “classroom experiments are used by a small share of instructors in introductory courses, but overall, games, simulations, and experiments are almost never used, despite the rising popularity of experimental research methods.”
to represent the same type of information. These could be valuable skills transferable to their other endeavors, during college and beyond. However, the visual presentation is not unique to poster projects as power point presentations can offer similar benefits, especially if they are required to be low on text and high on graphics. In fact, it could be argued that power point presentation skills are going to be more useful for students later in life as they are more frequently used relative to poster presentations. However, poster presentations have their place in the modern academic and business world. For example, many conferences include poster sessions (eg. AEA Committee on Economic Education regularly holds poster sessions during the annual ASSA meetings).

**Figure 1:** Examples of Poster projects completed for the Country Carnival project.

![Poster Examples](image1)

![Poster Examples](image2)

![Poster Examples](image3)

![Poster Examples](image4)
Finally, the poster projects allow for a much wider dissemination of the students’ work. In my experience, students enjoy displaying their posters and even more so they enjoy viewing other groups’ projects. In my classes, everyone looks forward to the day of the “Country Carnival,” which is usually a very fun and engaging class filled with sharing, learning, discussions and laughter. After this class the posters are displayed at the Economics Department windows for several weeks for other students to see and learn from. Such display of students’ work outside of their classroom can be beneficial for students who are considering taking this particular economics class, or, more generally, for those contemplating any economics class.

The potential for wider dissemination makes poster projects significantly different from a paper type assignment since the papers usually only read by the instructor or, in some rare cases, by a few other students. While technically, the papers could be posted on a shared class website and made available to everyone in the class, in practice they are unlikely to be read by everyone in the class, unless some sort of report on each paper is required from all students. In contrast, a poster viewing session will be attended by all students and all posters can be easily viewed in one class period. Similar to a poster viewing session, power point presentations are most likely to be attended by everyone in the class and have similar dissemination benefits for those in the same class. However, power point presentations are rarely attended by students outside of the class, while (selected) posters can be easily displayed outside of the class. In addition, power point presentations are likely to take more class time than displaying and evaluating posters. Thus, the potential for wider dissemination makes the poster project unique to other teaching methods.

Finally, another potential benefit is the instructor’s time spent grading this project. With some minimal advance preparation (such as designing rubrics and score sheets), virtually most grading can be accomplished during the project display class, while grading papers frequently requires a significant time investment outside of the class time. Optionnally, students can also be allowed an opportunity to grade each other’s work and submit grading sheets during the same poster viewing session. The peer-evaluation is not a necessary part of this project, and clearly is not unique to it, so pros and cons of peer-evaluation discussed elsewhere should be considered.

Despite the benefits, there are also some potential disadvantages of poster projects relative to other learning methods. First, the depth of the research completed by students and the type of material presented may be less rigorous than other types of projects, such as writing a research-based paper. For example, students could end up using the graphs and charts available on the internet rather than making their own. At the discretion of instructor such practice may be allowed or not (eg. students may be required to make original tables, graphs and charts or they could be allowed to use existing materials). Ultimately, this is up to the instructor whether to require students to produce original material or to allow the use of existing material. In this regard, this project is not different from the paper assignment and citations to original sources must be included (perhaps on the back of the poster), so it is easier to evaluate student’s original contribution and ideas from those obtained from other sources.

A related concern I heard expressed by some instructors is that this type of project of “gluing pieces of paper on the board” belongs more to the elementary school level rather than college level. Interestingly, none of the students in my classes have complained about this aspect so far. To the

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5 For example, in one of my Financial Markets and Institutions classes I assigned students to prepare power point presentations instead of posters. With about 10-12 groups of 3-4 students each, presentations took 3 class sessions to complete and by the third session the rest of the classmates seemed to be fairly disengaged from the presentations. In addition, I think it took too much time away from learning other material. To the contrary, all 10-12 posters can be displayed and viewed in one class.

contrary, they seemed to have really enjoyed the hands-on aspect of creating their posters (eg. some say they enjoyed “putting the information together on poster!”, see Appendix A3). This concern can be reduced with specifying the goals of the project and expected student learning outcomes and assigning grades based on the extent such outcomes and goals are achieved. For example, in my project I ask students to include a bullet point list of main developmental challenges facing a country they represent, which requires critical thinking and analytical skills expected of the college level product.

Finally, there is only limited amount of information that can go on the poster. Some students were disappointed that they did not get to share all the information they collected during their research while some students simply did not like the format of the poster, (eg. one said “I do not like doing creative projects, power point is much easier to follow”). On the positive side, the limited space should urge students to think carefully about the most important material to present. It is often harder to write a shorter paper than a longer one (eg. a common phrase attributed to various sources is “If I had more time, I would have written a shorter letter”) and poster projects could offer valuable learning on the value of selectivity and brevity.

3.2 Group vs. individual projects

The general considerations discussed above apply equally to whether the posters are done as a group or as individual project. In this section we discuss in more details different advantages and disadvantages of group vs. individual projects. However, most of these considerations are not unique to the poster project format and will apply to other types of projects. In other words, in many types of assignment the question of whether to assign it as an individual or a group activity should be considered with similar cons and pros.

One important consideration is the class size. It is clear that in large classes, say more than 20-30 people, individual poster projects are less feasible due to space and time constraints as they require time and space for arranging the display (eg. posting posters on the walls of the classroom) and time to view, discuss and evaluate the posters. Although, with a larger number of students the poster viewing sessions could be staggered and presented on different dates throughout the semester. On the other side, in very small classes, such as 10 people or less, there will not be enough groups to fully appreciate this project, since an important part of the learning is not only making their own poster, but also reviewing and evaluating other’s posters. As a rough guide, in classes of about 20 people either type of project – i.e. group or individual – would work, while in smaller/larger classes the individual/group format is more practical.

If the projects are done in a group, they would offer another important aspect of cooperative learning with its well-documented benefits. In group projects students are required to work together on the project, to share ideas, brainstorm and make decisions together. Such projects allow students to learn about teamwork, which is valuable since many jobs nowadays require team work. In my experience, many students comment favorably on the opportunity to work together as a team. For example, in response to a survey question of what they most enjoyed about the project many answer the following: “Working together, collaborating on an idea”, “Team work, allowed me to get to know peers”, “Get to know individual students better.” “Putting together what we research with team members”, “The group collaboration for a physical display also got us into deep brainstorming sessions as well as sharing of ideas.” (See many other similar comments in Appendix A3). On the other side, a

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7 http://quoteinvestigator.com/2012/04/28/shorter-letter/
8 For example, Yamarik (2007) found that students engaged in cooperative learning scored four to six points higher on exams compared to students enrolled in a traditional, lecture format class after controlling for classroom, demographic and academic factors. See also McGoldrick et al., 2011.
smaller minority of students, likely the introverted types, find working as group challenging and prefer to work alone (see section 5 for more details on this).

Clearly, poster project is not the only cooperative learning approach and many other forms of cooperative learning may offer similar benefits. For example, group presentations, group discussions and debates, group problem-solving and group case studies are other forms of cooperative learning that would get students a valuable opportunity to work in teams.

While group projects offer the important benefits of cooperative learning and teamwork, there are several challenges present in any group activity. First, the issue of free-riding is likely to arise as in any other group project. Some students are likely to make more effort than others, thus, students making less effort may be able to free-ride on the efforts of others. A few students shared with me informally that they have indeed experienced the free-riding in their groups. Interestingly, in my classes such complaints were more prominent in other group projects formats, such as power point presentations.

The free-riding problem makes it challenging to evaluate individual student’s performance and assign grades, which raises issues of fairness and equity. For example, students must work together on their pieces of the project and then decide what pieces make the final cut, thus the final contribution of the student to the poster may not be proportional to his or her efforts. However, in this regard the poster project is not much different from any other group project. For example, in many other forms of a group product, whether it is a paper or an oral presentation, not everyone’s ideas and materials will be equally included.

An issue related to free-riding is difficulty of grading the group projects. One way of dealing with group project grading is to assign the same grade to all group members. While this is much easier for an instructor to do, many students could find this unfair. Equal grade will increase free-riding and could also demotivate more active students to put less effort than they otherwise would. The alternative is to assign individual grades, but in any group project this is inherently difficult. One way to do this is to ask all team members to evaluate their own contribution to the project and/or evaluate each other’s contribution to the project. However, students may have different perceptions of their own and other’s contribution. Requiring students to give specific examples of what they contributed to the team may ameliorate some of these problems. A related approach is to require all the team members to write a short, individual paper summarizing what they learned from the assignment.

However, even though the grading of such project may not be perfect, one way to mitigate this concern is to assign a relatively small portion of the student’s overall grade for the class to this project. For example, a weight of 20% for the poster project will be more heavily balanced with the portion of the grade assigned based on individual performance, such as class participation, individual home works or exams. Thus, the free-riding, even if it occurs, may be of second order importance and unlikely to take away many of the benefits of group learning.

Besides free-riding, some other group dynamics may affect student’s engagement in the project and the quality of the final product. Some students are naturally more outspoken and in extreme cases can monopolize the group discussions and have undue influence on the final outcomes. More shy students, even though may have much to contribute, might end up without a fair share of their work represented. While these are all reasonable concerns, allowing students and opportunity to struggle with such issues in a supportive college environment can be considered a good preparation for the real world.

A different concern may arise with group projects done outside of the class since an additional constraint is placed on the students to find a time and place for the group to meet. For this particular project they need to meet at least once to post their materials on the board. Many students work in addition to being full time students and it is especially difficult for them to coordinate time as their work schedules vary. These coordination costs are not likely to be present for projects done during the regular
class time or for individually assigned projects, but will be present in any other group project done outside of the class. In my experience students rarely complain of high coordination costs, but it is certainly a constraint worth considering.

To summarize, like any other type of instructional activity, poster projects have their own advantages and disadvantages and their benefits need to be weighed against the potential costs. Ideally, economics instruction should use a variety of instructional methods, which would include writing research papers, discussing and debates, solving problems, making power point presentations etc. In this light, poster projects add an important and interesting element to the instructor’s toolkit.

4. A detailed example of the poster project

In this section I describe in detail one of the poster projects I implemented. This is a project implemented in an upper level undergraduate course in Development Economics.9 The nature of the course, which deals with different countries and a wide variety of development issues, is perfectly suited to this type of project. The project is called the Country Carnival, with the title of the project chosen to ignite student’s interest in the project at the start. In this project, groups of 2-4 students prepare a poster on a country they choose to represent. The poster includes key information about each country’s current development issues.

Figure 1 presents four of the posters completed by students in this project: Somalia, Turkey, Russia and Nepal.10 These posters are creative and visually appealing and reflect a variety of styles and forms students chose to present their information. For example, different types of charts can be observed on these posters, including the common bar charts and time-series plots, to more original “doughnut-charts” (on the black background on the Russian poster), population structure charts (on the Somalia and Turkey posters), the shaded world map (Russia) and a regional comparison maps (Turkey). The Russian poster also presents an interesting set of charts comparing Russia with the other three of the BRIC countries (i.e. Brazil, India and China).

I introduce the project during the early part of the semester (around week 3), and the due date is set sometime in the last half of the semester. I strategically create opportunities for students to meet each other during the early weeks via other in-class assignments, such as discussion groups, group case studies or group quiz assignments. It helps if students feel comfortable working with each other prior to start of this project. The in-class group assignments prior to the start of the poster project help to create a friendly and collaborative environment in the class.

The project starts with the overview class, which I schedule in advance. The overview of the project does not have to take the full class period. The date of the overview class is announced on the syllabus and highlighted during the first day of class. I emphasize that students need to attend the overview class, since the assignment is explained and groups are formed during this class. During the overview I start by explaining the assignment. I give the handouts with the detailed description of the project (see Appendix A1) and then go over the assignment in class and answer any questions. Second, we form the groups for the project. In my class, I first ask students to pick several countries they are interested to research from a list of options I distribute with the assignment. Then I ask students to mingle around and find other students with common interests and form groups of 2-4 people. After the groups are formed, I give them a little extra time to brainstorm the ideas for their poster, to allocate the work among themselves (i.e. each student will get to research a portion of the project), exchange contact information and decide on the date and time for future meetings.

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9 The course is ECON 442, Development Economics, offered at the University of Hawaii at Manoa.
10 Encouraging students to choose countries from different regions makes this project even more interesting for students. For example, in Spring 2014 class the countries chosen were: Somalia, Bulgaria, Myanmar, Ecuador, Thailand and Philippines.
Several points on the details of the project are worth emphasizing. First, the students have a choice of what material to present and how to present it. While I offer a list of options to choose from (see Appendix A1 for detailed description of the project), I do not limit them to these choices. I believe this allows students the freedom and flexibility to design their own project.

Second, I also offer students a list of sources where the relevant information can be found (i.e. books, on-line, etc.), but not limit them to these sources. For example, in my classes we often use www.gapminder.org, which is a great source of international data on a variety of topics. We use many of the similar data sources during the classes and homework assignment, so students slowly become more and more familiar with the sources of the relevant data as the course work progresses.

Third, I emphasize the visual nature of this project. For example, the assignment states: “Present the information in easy to see visual form, such as graphs, charts, pictures, maps. It is also useful to include some lists or bullet points. Do not include a lot of text.” I empathize that ideally, the poster should be self-explanatory.

Fourth, to make sure the main objective of the project is not lost in the details, the students need to know the key goal of the project. In my case, the following instruction helps to emphasize this point (I highlight this in bold on the assignment sheet): “Make sure your poster conveys in some way the key developmental challenges facing your chosen country.”

Fifth, students need to know ahead of time how the projects will be viewed and displayed. In my case, we have a scheduled day of the carnival, when all groups bring their posters in and post them around the classroom (I bring masking tape and scissors to facilitate the display of posters). The day of the carnival is announced in the syllabus and also on the first day of class. After all posters are posted, I allow some free time to look around. Students mingle about in their own pace from poster to poster and view other group’s work. Then we have a period of semi-formal presentations, in which each group is allocated a specific amount of time to make the key points on their posters. The presentations are followed by the question and answer period.

Sixth, students need to know ahead of time how the projects will be evaluated. Specifically, the instructor should announce the rubrics according to which project should be evaluated. In my classes, I engage students in designing rubrics for evaluation. Several classes before the project is due, I hold a brief discussion with students to develop a list of 3-4 rubrics for evaluation of this project. The rubrics can vary from class to class. One example of the rubrics and the scoring template employed in Spring 2014 class is given in Appendix A2. I also employ peer evaluation. On the day of the carnival, after the presentations are completed, students give evaluation to other groups (I distribute the scoring template to each group). They work on the evaluation score sheet with their group members. To facilitate a more careful evaluation, I offer a few bonus points for their evaluation work and ask students to include comments explaining their rankings. The final group grade is the average of all group’s grades, including the grade given by the instructor.11 It is important to note that peer evaluation is not a necessary component of this project.

Finally, I find that including some interesting information unrelated to the main topic allows students a chance to make their poster more engaging and original. For example, I suggest: “You can also present a few interesting facts about the country that are not development-related (but this should be a small portion).” Students are also encouraged to supplement sometimes dry charts with pictures, maps and other interesting tidbits or artifacts about their country. Many students find this aspect particularly interesting and some come up with interesting items to augment their presentation.

11 The weight given to instructor’s grade can be chosen on instructor’s preference. In my classes, I assign the same weight to my evaluation and the peers’ evaluations. I give students a printout with the distribution of grades, and the final average, but do not tell them which one is mine. Optionally, students can be also asked to evaluate their own work and provide comments to justify their evaluations. This can stimulate self-reflection and further learning.
5. Project Evaluation

I have collected anonymous surveys after two semesters’ projects. The surveys were conducted at the end of the Country Carnival class. Total 30 surveys were completed: 13 in Spring 2014 and 17 in Spring 2013 semesters. The evaluation form used in the Spring 2014 Development Economics class is given in the Appendix A2. Even though the surveys were anonymous, the response rate was 100% of students attending the class when the evaluations were given.

Figure 2 presents tabulations of the responses. The qualitative scale is converted to quantitative, with 1 representing “strongly disagree” and 5 representing “strongly agree.” Almost 90% of students (26 out of 30 evaluations, i.e. 87%) either agreed or strongly agreed with the statement: “I enjoyed this project”. Three students were neutral (i.e. neither agree nor disagree) and one student did not enjoy the project. Most students enjoyed the collaborative nature of the project: 80% of students answered either “agree” or “strongly agree” with the statement: “I appreciate the collaborative aspect of this project.” Over 80% of students either agreed or strongly agreed with the statement: “This project deepened my interest in the subject matter of this course.” Most students thought that they have gained new skills during the project: about three quarters of the students (i.e. 73%) either agreed or strongly agreed with the statement: “This project helped me to learn how to convey information in a visual form.”

The next two questions asked students whether they would prefer this project to either writing a paper with similar content by themselves or writing a paper with similar content with the same group of students. Interestingly, over 55% of students preferred this project to writing a sole-authored paper and a higher percentage – 73% - preferred this project to writing a paper with the same group of students. The difference in the answers can point to the challenges some students experience working in groups – perhaps coordination costs (i.e. finding time and place to get together with group members) and/or free-riding by other students, although these problems were not explicitly mentioned.

The survey then asked to provide open-ended qualitative evaluations of the project. Two questions were asked: “Please list one or two things that you enjoyed the most about the project,” and “Please list one or two things that can be done differently in the future if a similar project is offered.” The comments received in response to these questions are given in Appendix A3. Most comments reflect a very positive experience of the project. A few constructive suggestions were given by students as well. In the first semester several students commented on some vagueness in the project description and unequal allocation of time among the groups. Both of these issues were corrected in the second semester. Some students offered interesting suggestions, such as handouts (so students listening to the presentation can follow more easily). These could be implemented based on instructor’s discretion.

The last question on the evaluation was asking students whether they would recommend other ECON instructors to offer a similar poster project in another economics class. Out of 30 evaluations I received 23 students, or 77%, answered “Yes”, 5 students or 18% answered “No” and two students did not respond to that question, perhaps because they felt neutral or could not make up their mind.

I recommend all instructors conducting such projects to collect evaluations of the project as they help give immediate feedback and provide valuable information for improving the project in the future. The evaluations, conducted shortly after the completion of the project can provide immediate satisfaction for the instructor and a payoff on all the investment of time and resources in developing this project. In addition, students often appreciate an opportunity to share their opinion and appreciate when instructors are responsive to their comments. Finally, filling out the evaluation offers students a chance to reflect on their experience and integrate it in their minds. I believe such evaluations also contribute to overall student satisfaction with the course and the instructor.
Notes. See questionnaire in Appendix A3. The scale is 1=“strongly disagree”, 5=“strongly agree”
6. Sample ideas for poster projects in various economics courses

Poster projects can replace many other types of individual and group work, such as homework assignments or a term paper. The types of topics most suitable to poster projects involve some graphical or visual information. Any assignment that involves students collecting or analyzing economic data can be converted to poster project format. Below I offer a sketch of poster projects that can be implemented in various economics classes.

**Macroeconomics.** A poster project can be easily adapted to any introductory or intermediate macroeconomics class. One type of project could be country specific and students would find, analyze and present key macroeconomic data for that country. For example, the data could cover the recent history of business cycles for each country, or a relationship between interest rates, growth and inflation or another related topic. Students may also be encouraged to think how the data fit with the theories studied in class. Another option is to focus projects on various topics, which can be chosen from the list of topics covered in class or extra topics not covered in class. Students can choose from a list of topics prepared in advance by the instructor, or develop their own topics (with instructor’s approval). The posters can include analysis of basic macroeconomic data and a presentation of theories the data help to support or reject. In the case of country-specific project some interesting visual information on the country can add some spice to the posters (such as its currency, the name/picture of their central bank, key policy figures, maps, etc.).

**Finance.** A “wall street investment” project can be included in any finance-related class. In this project students chose companies, track security prices for a certain period of time (a few weeks or a month), make charts with the prices and calculate their gain/loss. They can also analyze the economic news that affect their stock/company during the charting time and relate these to price changes and to theories studied in class. Information on the company, including pictures and basic data, along with the price charts can be included in the poster.

**Trade:** Poster projects can easily fit in classes that deal with international trade. One type of projects can focus on presenting a country in terms of its key imports, exports, trade partners, tariffs and quotas, and key trade issues. Another type of project could be more of a case study presentation on a particular trade conflict (e.g., the Kodak-Fuji film dispute between the US and Japan, or complaints regarding China’s rare earth mineral export limitations). The list of topics for trade conflicts can be given in advance and students can also be encouraged to come up with their own topics.

**Environment:** Many classes dealing with environmental issues can include a poster project. The focus could be on a specific country, state or topic. For example, students may pick a country or a state and research key facts on environmental issues facing that country. The wide range of countries, including developed and developing and covering different regions of the world would widen the range of issues discussed. Alternatively, students can prepare posters on any number of topics from a list offered. The posters can reflect facts of the particular environmental issue (i.e. the rate of CO2 emissions growth by country, by time, or by state), some images of the problems, historical facts, theory (expressed via graphs), etc.

**Microeconomics and Industrial Organization.** The poster projects can be prepared on a variety of companies or industries, with any particular focus that fits best with the class theme. These posters can include pictures and descriptions of the company/industry, as well as any data pertaining to the topic, along with the theories these data relate to.

**Statistics/Econometrics/Forecasting.** These data analysis courses are well suited to a poster project design. Any type of assignment that involves data presentation and analysis can be transformed into a poster project. The posters can include basic summary of the data, histograms, scatter plots, regression output and bullet point summary.
7. Conclusions

This article introduces an active learning strategy of poster projects and discusses their use in economics education. The basic design of the poster projects with the key factors to be included in the design of the project is discussed. Comparative analysis of costs and benefits of poster projects relative to other types of active and cooperative learning are discussed in detail. Whether done individually or in groups, poster projects offer an interesting format that can bring more variety to the all too common “chalk and talk” lecture.

The paper presents one specific example of the project offered in undergraduate Development Economics courses. The benefits are demonstrated using survey data, which shows that most students really enjoyed the projects and found it to be a valuable learning experience. About three-quarters of the students say they would recommend other instructors to conduct similar poster projects in other economics classes. Such a strong student support implies the high value students place on such projects.

The poster projects could also be fulfilling for instructors and stimulate their own creativity in design and implementation and offer an often lacking variety in their instructional methods. This can increase instructor satisfaction, and hence their enthusiasm for teaching, which will ultimately benefit students as well.

To summarize, I believe that poster projects can improve the experience of students with the economics education and I suggest all instructors to consider including poster projects, or another similar format in their economics classroom.
References


Appendix A1: Country Carnival instructions

Find a group of 2-3 people that will agree on a country to research (note the “excluded” country list). Get the instructor’s OK on your country choice. Your assignment is to prepare and present a poster with key information about this country that is related to development.

You choose what type of information to present and how to present it. Paste all info you collect/choose to present on the poster. During the Carnival we will all paste our posters on the board and “travel” to different countries. After the class the posters will be displayed at the Economics Department office for 2 weeks or so.

Present the information in easy to see visual form, such as graphs, charts, pictures, maps. It is also useful to include some lists or bullet points. Do not include a lot of text (some bullet points is OK). **Make sure your poster conveys in some way what are the key developmental challenges facing your chosen country.** You can also add some suggestions for the policies that would address these challenges. You can also convey some favorable or unfavorable developments in recent history of this country. You may also include short quotes (eg. Form the “voices of the poor” or any quotes of well-known people about this country related to development). You can also present a few interesting facts about the country that are not development-related (but this should be a small portion).

Here are some examples of types of information to present (you are not required to present all this information, neither should you be limited by these suggestions):

- Data on % of population in poverty (or living on less than $1 per day)
- Historical growth rates charts
- Comparison of GDP per capita or growth rate or HDI or any other indicators with other countries in the region (or any country which you feel your country should be compared with)
- Data on health and education (eg. life expectancy, infant mortality, HDI, school attendance, literacy, hunger, malnutrition)
- Data on income inequality and/or gender inequality
- Data on business environment or financial markets (access to finance by the poor or small businesses)
- What are the main sectors of the economy, what are the main exports/imports,
- What are the comparative advantages/disadvantages of the country
- What is the political situation

**Data sources:** you can use any sources you can find, including those listed in the PPT and the syllabus, and also sources listed in the textbook (check the “Review Questions” section of each chapter – it has a number of links to the data) or any Case Studies we will be covering.

Be prepared to answer questions during the Carnival about your country and relating to any of the specific information that you chose (including questions of why you chose your country or any particular piece of information).
GRADING: Be prepared to evaluate other groups and be evaluated by your peers. The grading criteria will be determined in class. All members of the group will receive same grade, unless one of you objects, in which case the grade will be individual and determined using feedback from your group members.

You can pick any country from low income or middle income except the following: Brazil, Pakistan, Bangladesh, South Korea, Argentina, China, Haiti, Dominican Republic. NOTE: that some very tiny countries may not have much information available (although this should not deter you).
Appendix A2: Country Carnival Evaluations

Your answers will help me decide whether to offer such project in future classes and if so, how to modify it. Your answers will also be helpful in sharing this experience with my colleagues here at UH and more broadly. Thus, your answers will have effect on other student’s experiences.

The answers should be **specific only to this project** and not include any other components of this class.

Your answers are anonymous and voluntary. However, if you want me to follow up with you regarding your answers please sign your name.

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<tr>
<th></th>
<th>Strongly disagree</th>
<th>Disagree</th>
<th>Neither agree nor disagree</th>
<th>Agree</th>
<th>Strongly agree</th>
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<tbody>
<tr>
<td>I enjoyed this project</td>
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<tr>
<td>I appreciate the collaborative aspect of this project</td>
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<tr>
<td>This project deepened my interest in the subject matter of this course</td>
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<td>This project stimulated my creativity</td>
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<td>This project helped me to learn how to convey information in a visual form</td>
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<tr>
<td>I prefer this type of project to an assignment that would involve writing a paper with the similar content by myself</td>
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<td>I prefer this project to an assignment that would involve writing a paper with the similar content collaborating with the same group of people</td>
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</table>

Please list one or two things that you enjoyed the most about the project

Please list one or two things that can be done differently in the future if a similar project is offered

Would you recommend other Econ instructors to offer a similar project (that would involve preparing a poster) in another economics class (circle)  YES  NO
Appendix A3: Comments from Students about the Country Carnival project

The following comments were received on the anonymous and voluntary evaluations performed at the conclusion of the Country Carnival in two of the Development Economics courses (Spring 2013 and 2014).

Answers to the question “What did you enjoy the most about the project?”:

- “Ability to research on a country I never would have and to hear about other countries.” “A project in an econ class! It fits development economics perfectly.”
- “I enjoyed creating the graphic art. I enjoyed the presentation aspect.”
- “The creative ability to make a ship”
- “Working together, collaborating on an idea.”
- “Hands on nature of making poster. Talking about Econ Data in a more visual way”
- “Creative aspect was fun! Team work, allowed me to get to know peers. Everyone chose different regions of the world.”
- “Working in a team; the creativity aspect; being able to choose a country of interest; everyone chose different regions of the world”
- “Chance to see examples of concepts discussed in class happening in different parts of the world. Get to know individual students better.”
- “It was interesting to study about a country that I was not familiar with.”
- “I do prefer doing a project visually versus writing a paper.”
- “Process of trying to figure out the most important three challenges. Making it more ‘visuable’ rather than filling it with words.”
- “Being creative”
- “Learning new things about the world.”
- “Doing research about each index and organizing them. Putting together what we research with team members.”
- “The poster boards as well as the change in routine and pace for class made this enjoyable. The group collaboration for a physical display also got us into deep brainstorming sessions as well as sharing of ideas.”
- “Putting the information together on poster!”
- “I enjoyed creating visuals to represent information instead of writing a paper. I also enjoyed listening and viewing the work of other groups. I feel that I learned much more than if I had wrote an essay on one country only.”
- “I really enjoyed doing research on a developing country. This makes me want to put my economics degree to use by working in a developing country.”
- “ability to use charts and graphics”
- “interpreting graphs and relating them with history, politics and economics.”
- “seeing different approaches to the assignment, comparing different aesthetic choices [of other groups]”
- “.. I learned how to make a visual project.”
• “getting to go deeper into a specific country/region. It is different from what we do in other classes.”
• “It was really nice to get to know other group members. It was nice to move from group to group during presentations so that everyone got a chance to speak.”
• “I enjoyed working in a group as it helped me to find and learn things I would never otherwise. I actually liked that we created a poster, a physical accomplishment reflecting the research in a way that is appealing.”
• “makes learning fun”
• “It was very helpful to understand the contents because I had to explain with few words.”

Suggestions for improvements:

From Spring 2013 class:

• Allocate same class time to different groups
• Better description of what is necessary
• Better understanding of how it will be presented
• Open-endedness of requirements made it harder than it had to be
• Music
• More standardized format
• More clear guidelines – i.e. content and use of materials
• I had a lot of information I did not get to share
• Set presentation time.

From Spring 2014 class:

• Make it later in the semester – more time to complete
• I don’t like speaking, lol; [being] nervous may not reflect the amount of work put into studying
• Individual assessment of team members
• Smaller groups (2 people)
• Encourage a handout with key facts
• The grade for the project is too big
• I do not like doing creative projects, power point is much easier to follow