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Lifelong Learning Group

Marcellus Matters EASE:

MarcellusByDesign

Summative Evaluation Report

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Background

Marcellus Matters: EASE

Marcellus Matters: Engaging Adults in Science and Energy (EASE) was a program of Penn State University's Marcellus Center for Outreach and Research (MCOR), in collaboration with other experts across the university. The first year of program activities took place in 2012, and the project continued through September 2016. EASE was a multidisciplinary initiative that provided adults in rural Pennsylvania with opportunities to increase their knowledge of science and energy systems and engage in scientific inquiry and investigation through the lens of natural gas development.

The present report addresses one of the four program activities, MarcellusByDesign.

MarcellusByDesign

As part of the Marcellus Matters: EASE project, team members sponsored a series of environmental planning workshops called MarcellusByDesign. The workshop series was primarily geared toward local community members in counties across Pennsylvania, and it drew on both community members' own knowledge of local planning concerns and the design capacity of landscape architecture students connected to Penn State's Hamer Center for Community Design. Despite some variation across individual events, all MarcellusByDesign events followed the basic structure of offering attendees some general background on landscape architecture as a discipline, then engaging participants in specific research-driven design solutions that could prevent and/or mitigate the possible effects of shale gas development in the community where the event was hosted. The stated goals of the MarcellusByDesign program were that participants would become more aware of the complexity of planning issues surrounding shale gas development and that participants would gain an improved understanding of the role of the individual and potential applications of landscape architecture in wider community decision-making.

In early MarcellusByDesign events, evaluation included both the program team and local participants in order to learn about the strengths and challenges of participation from a variety of perspectives; evaluation of later events focused primarily on participant responses. Because the format and content of the workshops evolved over the course of the project, the present document reflects findings associated with various iterations of this event.

In the context of the larger project goal of fostering civil dialogue, evaluation sought to answer two overarching questions:

- To what extent did MarcellusByDesign build participant awareness of planning issues?
- To what extent did MarcellusByDesign foster or enhance individual participation in community planning discussions?

Methods

Summative evaluation of MarcellusByDesign was a census study; all participants in the workshops were invited to complete a post-event questionnaire. For the first MarcellusByDesign event, the project team gathered formative feedback, while members of the evaluation team conducted semi-structured observation of the event and subsequently debriefed with the program team. Semi-structured observation was repeated by the evaluation team at the second event in order to track the changes made in response to feedback, as well as variation in responses from participants. Following the first workshop, all participants in the remaining MarcellusByDesign events completed a revised questionnaire focused on their experience of the program and their takeaways from it.

Limitations

When interpreting results to this study it is important to note the limitations, which by design included self-reported change in response to the program. While self-reported assessment is inherently biased by the perspective of that individual, this approach is appropriate to the central questions of this evaluation, which pertain to individuals' perceptions of and reactions to the program and invite primarily qualitative data. In addition, while the very high response rate to the data collection means that the data almost fully represents the population of participants, the small number of individuals involved presents some limits to what can statistically be said about quantifiable data, especially with regard to variation between counties. Therefore, analysis of quantitative data has been limited to descriptive statistics for central tendency.

Results

In total, there were seven respondents to a programmatic questionnaire administered by the team at the initial MarcellusByDesign event; evaluation data included 20 additional respondents who responded to a summative questionnaire at the four subsequent events in Tioga, Lycoming, Indiana, and Clearfield counties.[1]

Phase One: Program Development

As part of program activities, the MarcellusByDesign, team used a short questionnaire at the first event to document community participants' responses to the experience. This instrument was intended to gather general feedback about the workshop activities, and where possible, provide some additional information about respondents' perception of main messages. From these data, several key observations rose to the top in considering the Sullivan County planning workshop. As expected, hands-on activities and opportunities for discussion were high points, and facilitators found them most effective when community members were explicitly given the chance to share their knowledge of the area. Although this seemed to be true for a photo activity, in which participants looked at photos of viewsheds and various community landmarks and ranked their familiarity and cultural importance, it was particularly prominent for the feltboard activity and the mapping exercise, which invited participants to attempt to place a well pad within Pennsylvania

[1]The overall audience at the first MarcellusByDesign included approximately 35 adult participants. However, because the event was immediately followed by a community planning meeting, the response rate at this event was lower than anticipated. Despite this, additional information on the participants who did not complete a questionnaire may be gleaned from observation data.

regulations and landowner desires, and to name areas of local importance, respectively. Although some participants seemed to view any discussion of mitigation or remediation efforts as unacceptable (per a strong conviction that drilling should simply be prevented), others found important entry points that they could connect to their personal interests, specifically when topics related to conservation of natural and cultural resources and potential effects on landowners. While some logistical concerns like timing and the structure of a photo activity were mentioned by both participants and facilitators, and there was some pushback in service of political activism, these minor challenges presented tangible and approachable opportunities to improve future program offerings and bolster authentic community dialogue. On the whole, the overall tone of the workshop could be described as positive and productive, and comments from both participants and facilitators were largely consistent with the broader goals of the Marcellus EASE project.

During the presentation segments of the workshop, participants' observable reactions of surprise or approval were particularly evident in moments where facilitators provided visual examples or mock-ups of mitigation efforts that showed strong before-to-after contrast. In addition, there were more instances of whispering and side talking in the audience in moments where facilitators deployed a strategy of naming something they thought participants would identify as important (e.g., leasing rights, presence of big box stores, trucks from the gas companies, etc.); whether this reaction appeared positive or negative tended to vary depending on tone and topic.

An important high point of the evening was the breakout mapping activity in which participants located important community sites on large maps in conversation with facilitators. Several participants expressed that they had a great deal of information to share (e.g., "I could do that all day"). Importantly, this was recognized in the facilitator reflections described above, as in the comment "Everyone was so eager to share their personal stories and their 'places' with us."

Although both participants and project personnel noted that people who had attended the Community Science Volunteers class sequence had already done the feltboard planning activity (due to its being part of the course module on land use), that breakout session also yielded some fruitful conversations. Of special note was a shift in the focus of some small group conversations: whereas some participants initially described any development of impact as absolutely unacceptable (and therefore did not want to discuss mitigation efforts), discussions began to move to strategies for minimal impact as the activity progressed. This suggests important headway toward reaching the overarching project goal of building civil dialogue.

Observation data also underscored that the emotional facets of gas development could function either as barriers or as entry points. While some participants were resistant to the planning concepts because they wanted more emphasis placed on their own experiential knowledge and personal concerns, others seemed to find greater stake in mitigation when planning efforts were contextualized by residents' prioritized viewsheds or cultural resources. During the feltboard planning activity, the provided distance measures seemed to be an important point of recognition activity pieces for some participants. Among the exchanges observed by evaluators, the measures also highlighted the personal aspects of gas development: the people who chose the distance measures first went straight to discussing their well pads' proximity to homes. Although the photo activity seemed difficult for some participants, facilitators hypothesized that this could be improved simply by reducing the number of photos to choose from. Despite what appeared to be some logistical difficulty in allocating the photos across ten categories, both the photo activity and the mapping activity seemed to result in participants' sharing a great deal of information about specific community resources and priorities with facilitators.

Secondary Data: Community Responses

Following the planning workshop in Sullivan County, several commentators wrote about the event online. Although analysis of their comments was not part of formal evaluation efforts, these texts did provide some contextual information that were relevant to the team's interest in communication strategy. Of the two most prominent examples, one commentator gave a very positive review of the event, while the other represented a strongly anti-gas sentiment more broadly. The positive review, which was written by Emily Krafjack and published on the website of C.O.G.E.N.T (Connection for Oil, Gas, & the Environment in the Northern Tier, a non-profit organization which describes itself as "a resource for those seeking reliable, objective information regarding all aspects relative to the development of unconventional shale resources"), cites the timing of gas development in Sullivan County as important to understanding the topics presented.[2] In short, the review praised the workshop as "an advantage with opportunities to apply these concepts," both in preparing for eventual development and in mitigating damage from past and present efforts. Among the presentation topics described in the review, Krafjack listed industrial camouflage, strategic placement of pipelines and well pads, planting along pipelines, and ecotourism as workshop highlights.

Most notably, Krafjack specifically commented on the efficacy of landscape architecture and design as the focus, rather than the issue of gas development more broadly. In contrast, the negative piece, which was posted by people who explicitly identified as anti-gas activists, mainly focused on what the workshop did not cover: environmental impact.[3] This article seemed to say that to describe other issues from a purely academic perspective constitutes support for development and/or demonstrates influence from the gas companies; indeed, it went so far as to imply that the topic of planning was chosen as a distraction from other issues. Both the content and tone also suggested that the authors saw the workshop as a potential platform for putting forth their political concerns, which they acknowledged were different in focus. Moreover, the closing statement that "I shall continue to push these issues via email listserves [sic], social media forums, affiliated organization websites, and at upcoming political debates until they are thoroughly and adequately publicly addressed" strongly suggested that the particular group represented here was generally uninterested in the modes of dialogue that the project was intended to support. Although the critiques described in the negative piece did not address the actual goals of the workshop, they were nonetheless instructive in understanding possible barriers related to public expectations and perceptions of outreach work that is affiliated with large institutions. Subsequent conversations and e-mail correspondence among project team members suggested that this type of resistance was present and visible across multiple project experiences and was a consistently important facet of public conversations about shale gas development; therefore, finding productive ways of addressing these constituents positively and directly became a key focus of project-wide communications work.

Phase Two: Program Refinement and Sustainability

For the remaining four MarcellusByDesign events, the program consistently included presentation of student research applications to local issues related to shale gas development. As the online resources associated with MarcellusByDesign became more fully elaborated and complete,

[2] The full text of this review is available here: cogentpa.org/2013/12/08/marcellus-shale-landscapes-better/
[3] The full text of this review is available here: pacitizensane.blogspot.com/2013/12/penn-states-marcellusbydesign-has.html

additional program elements related to the use of those resources, particularly student projects and games (such as one based on the analog felt board experience), were added to the program structure.

Rooted in formative feedback and strategic planning, these programmatic changes were largely successful, as evidenced by both audience data from summative questionnaires and semi-structured observation of the second workshop event. In counties where there was a local "champion" for the project (i.e., someone who would enthusiastically advocate for participation and share knowledge with others), this factor seemed to foster a supportive and interested audience. For example, personal invitations from and the endorsement of a Tioga County planner were mentioned by multiple participants aloud and in writing. In addition, that planner's direct call to consider students' project work in the timely efforts to update county planning documents seemed to make the students' ideas seem possible in the immediate future.

While the choice to include fewer hands-on breakout activities in the remaining counties meant that there was less structured knowledge sharing from community participants than there was in Sullivan County, it also meant that students were able to explain their work in more depth, and that both community members and students had the opportunity to discuss specific interest areas in more concrete and focused ways during the question and answer session.

In the initial MarcellusByDesign program, presenting local solutions while respecting community members' own understandings of place was mentioned as a challenge by a few students, as well as a few participants. After restructuring the program, the students seemed to have strongly cohesive strategies of employing user personas, concrete visual and emotional references to history, and comparisons to their own sense of meaning and place. These strategies seemed very effective in personalizing their projects and making them seem relevant for community members, in that comments of this type were commonly met with nodding, smiling, and positive side talk from participants.

Audience Expectations and Needs

Audience data suggest that respondents did not seem to have a specific, concrete sense of what the MarcellusByDesign program would include, but they were mostly unified in saying that the overall quality and depth of the event exceeded their expectations. In describing their expectations for MarcellusByDesign events, participants most frequently anticipated hearing general information about shale gas development (5 respondents). The next most common expectations related to the tone, with three respondents anticipating a *more* formal presentation and one respondent expecting a *less* formal presentation. Another prominent theme was the availability of practical resources (3 respondents). Others were more uncertain, noting either that they did not know what to expect, or general ideas based on what they had heard or read (e.g., cosmetic fixes, "Follow up activities related to issues brought out in the previous 10-week sessions on Marcellus development," or "local info").

When asked to compare the program to their expectations, respondents (n=20) primarily offered general positive comments (e.g., "The program was great"). Strong secondary themes included comments about the content (5 respondents) and/or depth (4 respondents). For example, one respondent commented that the program included "More theoretical analyses/cultural resources" than expected, and another noted that "Many more areas of impact from shale gas development were presented" (Summative Evaluation Questionnaires). In contrast, one respondent commented that there was less depth to the program than expected. Meanwhile, a few respondents commented

on the potential to apply what they had heard, and two respondents felt that the program was less formal than they anticipated.

Audience Takeaways and Experiences

When participants were asked to describe what was most interesting to them about MarcellusByDesign events, the most frequent categories of response pertained to a specific local application or treatment (5 responses, such as "Blossburg re-design. It is very pertinent right now!") and novel approaches to decision-making about land use (5 responses, which included mentions of context and cultural resources). Other prominent interest areas were the inclusion of academic studies and the science of planning for land use (4 responses) and introduction to the MarcellusByDesign website (3 responses). In addition, one respondent commented that "everything" was interesting, and another remarked on the connection between invasive species and shale gas development.

Participants were also asked to share anything described in the program that was something they already knew. Repeated answers (with two respondents each) related to Act 13 (a state legislative amendment which provides for local impact fees from unconventional gas wells), riparian zones and buffers, water management, and the complexity of planning for land use. Other individual responses related to the "design of a wellpad," "the visual narrative of architecture," gardening, and habitat impacts.

When asked if anything they heard in the MarcellusByDesign program contradicted what they already heard, respondents were unanimous in reporting that nothing had. As one respondent wrote, "I don't think anything contradicted what I have heard--I just heard much more." Participants were also invited to share any potential applications for what they had seen in the MarcellusByDesign program. Among their comments (n=15), use of the new MarcellusByDesign website was most prominent, with nearly half of respondents (7 individuals) reporting intention to use the online resources. A third of respondents (5 individuals) reported sharing information, both through personal discussions and through local and regional publications. Importantly, two respondents indicated specific, immediate intention to use students' design suggestions in their town planning documents. Individual comments related to enlarging a town garden and thinking about "how I can use my engineering design skills combined with geographical data analysis to make better decisions."

Specific to the well placement exercise, respondents (n=10) answered three scaled items (where 1 meant "Strongly Disagree" and 7 meant "Strongly Agree") related to the learning goals of the activity: understanding complexity and understanding the particular concerns of a variety of perspectives (Table 1). Of these items, participants moderately agreed that they had observed variable outcomes in relation to their land use decisions. In addition, they indicated slight agreement that they could understand perspectives other than their own, as well as the potential ramifications of gas development in their own lives.

Table 1. Participant agreement ratings related to the MarcellusByDesign feltboard activities

Statement (n=10)	Mean	Median	Mode
I could see different effects associated with different placement choices	6	6	7
I could understand why someone might place the well differently than I did.	5.6	6	6
I feel more aware of what gas development might mean for me personally	5	5.5	6

In thinking about the general experience of MarcellusByDesign, participants were invited to rate their level of agreement with several statements about the social dynamic of the event (on a scale where 1 represented "Not at All" and 7 represented "Completely"). Respondents (n=16) reported slight to moderate agreement that they felt comfortable sharing their perspectives and that their voices were heard (Table 2). Perhaps relatedly, participants reported slight disagreement that their perspectives were very different than those of other attendees.

Table 2. Participant agreement ratings related to their overall experience

Statement (n=16)	Mean	Median	Mode
I feel that my perspective was very different than the perspectives of other people at today's workshop.	3.1	3	2
I felt comfortable sharing my perspective in today's workshop.	5.9	6	6
I feel that my voice was heard in today's workshop.	5.7	6	7

Taken together, these data suggest that while audience members' entry points and major interest areas varied a great deal, participants were largely well-informed about key issues touching their lives and communities, yet the major appeal of MarcellusByDesign was still closely aligned to the program's goals of communicating the logic of planning and actionable information to support community involvement.

Team Reflections

In a final group debrief, the EASE project team as a whole was asked to outline what their goals had been for the MarcellusByDesign program, what they felt participants had gained through the program, what they themselves would identify as major takeaways or lessons learned, and what they identified as the legacy of the program (Figure 1).

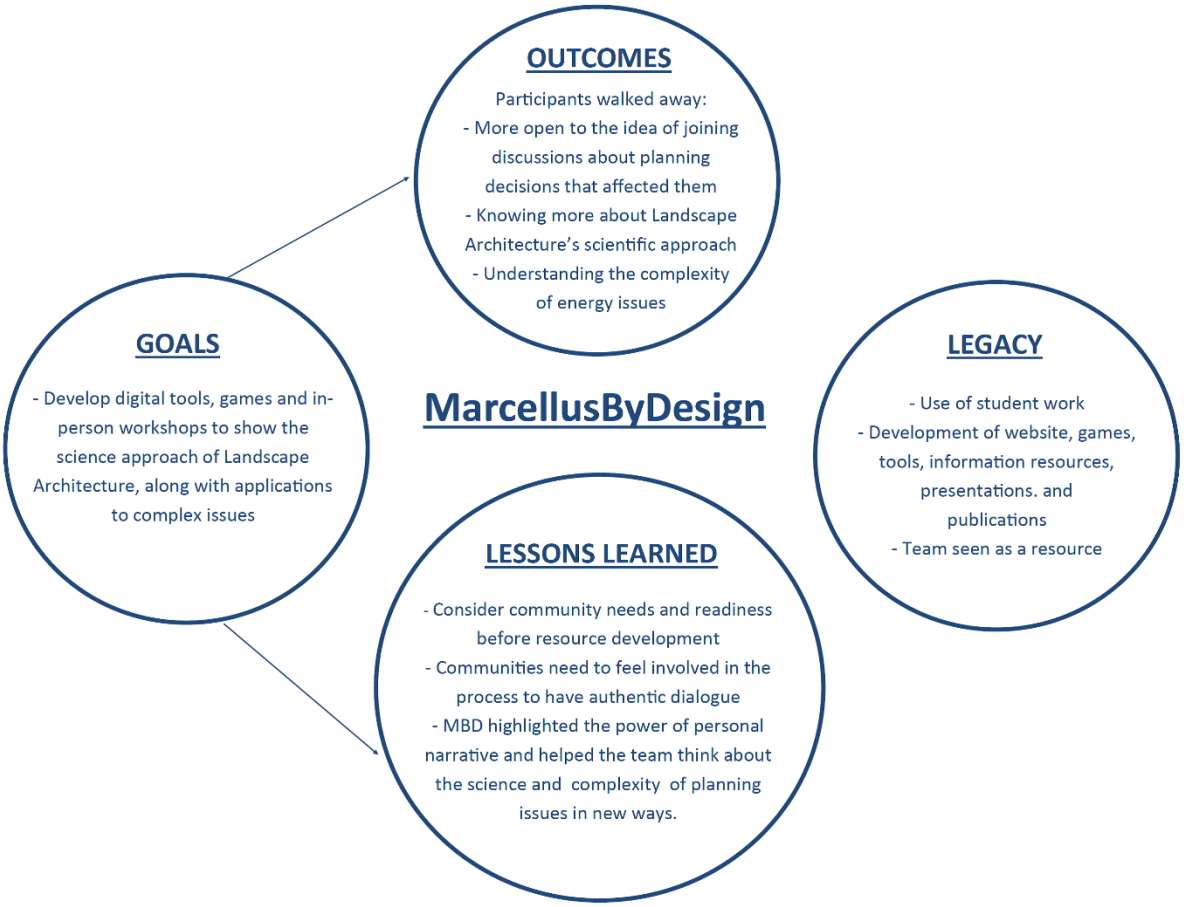

Figure 1. Team reflections on the MarcellusByDesign program

In reflecting on MarcellusByDesign, project team members observed among participants an increased awareness of landscape architecture as a tool for responding to shale gas development and for participating in community decision-making. Additionally, they saw the program as successful in communicating the complexity of shale gas development and related issues, both through the MarcellusByDesign community planning workshops and through the design-related module of the EASE Community Science Volunteers course. In terms of their own takeaways, the project team indicated that MarcellusByDesign illustrated the need to understand community perceptions, as well as local needs and readiness to proceed with community planning, prior to programming. As was true for several other aspects of the overall project, team members also observed that attending to personal narrative and local knowledge could be powerful strategies for building the conditions for productive dialogue.

As with other EASE programs, the legacy associated with the MarcellusByDesign program included faculty publications and presentations (both at conferences and at Penn State's own Gallery Conversations series), along with documentation of the content presented to participants and team members' being viewed as resources for expertise and support by both colleagues and program participants. In addition, the MarcellusByDesign team developed a particularly robust suite of online resources, including research-driven games based on workshop activities, "storymap" applications designed to share geospatial data with community members, video interviews

illustrating a range of perspectives on shale gas development, and a repository of student design projects tailored to specific community concerns. These resources are available at the following URL: http://sites.psu.edu/marcellusbydesign/

Conclusions

Overall, the development and implementation of MarcellusByDesign demonstrated efficacy at sharing a relatively unfamiliar academic perspective on issues related to shale gas development with participants in target communities. While the number of participants present at individual events was limited despite the use of many outreach strategies, data from the program suggest that those who participated responded favorably and reported learning new things related to planning for the existing or potential effects of shale gas development in their communities.

Interestingly, the workshop events did vary somewhat from participants' expectations, in that most did not expect the specific types of content and/or depth of content they observed. In general, participants also agreed that they felt their voices were heard and they were comfortable sharing their perspectives; however, they also reported that they did not feel that their perspectives were particularly different from those of others in attendance. This finding was underscored in respondents' discussions of their expectations for the events: many participants entered with some specific technical knowledge related to shale gas development, and most did not feel that their entry knowledge and perspectives were contradicted. Notably, most still indicated that they had learned something during the workshop. While this primarily related to specific design solutions or strategies, in some cases, it also related to thinking about community decision-making. For example, in considering the feltboard well placement exercise, audience data illustrated that the activity was effective at helping participants see different rationales for placing wells in specific locations, as well as the effects of placing wells in those locations.

Moreover, program data also suggested that the suite of resources made available to participants through a combination of community planning workshops and the program's online presence were met with enthusiasm, intention to apply learning to real-world issues, and in a few cases, documented action. In describing possible applications of what they learned from MarcellusByDesign, participants described exploration of the online resources, sharing information with others, and including suggested planning strategies in upcoming community planning conversations. By the end of the project, an important takeaway from MarcellusByDesign was the recognition of the need to understand community perceptions and needs—and to link that understanding to programming in service of fostering productive dialogue.

In addition to faculty dissemination work and improved relationships with communities and representatives from other academic disciplines, a major success of the MarcellusByDesign program was its team's work toward project sustainability in the form of comprehensive and accessible online resources. In summary, MarcellusByDesign not only supported improved knowledge and accessibility to community planning among its participants, but, through strategic resource development, also stands to continue doing so for interested adult learners for the foreseeable future.

Appendix: Post-Program Questionnaire

Share your feedback

This event was produced by the Penn State University Marcellus Center for Outreach and Research, and it is part of a project supported by the National Science Foundation. Sharing your thoughts will help us understand the impact of this event. Thank you for taking a moment to answer these brief questions.

What did you expect today's workshop to include?

How did the workshop compare to what you expected?

What ideas from today's workshop were most interesting to you?

What if, anything, was something you were already using or knew about from your personal or professional life? What, if anything, contradicted what you have heard before?

I Was Already Using/Already Knew	Contradicted What I've Heard Before

What do you think you might do with what was presented or discussed tonight?

Please circle a number to show how much you agree with the following statements ***about the group feltboard activity (deciding where to place wells on a plot of land)****.*

	Not at All						Completely
I could see different effects associated with different placement choices.	1	2	3	4	5	6	7
I could understand why someone might place the well differently than I did.	1	2	3	4	5	6	7
I feel more aware of what gas development might mean for me personally.	1	2	3	4	5	6	7

Please circle a number to show how much you agree with the following statements ***about your experience.***

	Not at All						Completely
I feel that my perspective was very different than the perspectives of other people at today's workshop.	1	2	3	4	5	6	7
I felt comfortable sharing my perspective in today's workshop.	1	2	3	4	5	6	7
I feel that my voice was heard in today's workshop.	1	2	3	4	5	6	7